TEACHING USERS TO UTILIZE ANIMAL HEALTH INFORMATION IN AN ELECTRONIC ENVIRONMENT

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ABSTRACT: The growth of biomedical information available in electronic format mandates the incorporation of the use of computerized information resources into courses for animal health information scholars. Librarians serving as lecturers in the Epidemiology and Preventive Medicine Department in the School of Veterinary Medicine at the University of California, Davis, have included a host of computerized information resources in the structure of a three-unit credit course entitled EPM 401: Biomedical Information Resources and Retrieval. The course is required for veterinarians in the Masters in Preventive Medicine Program, and is an elective for veterinary students. Resources in electronic format covered by the course include the University of California's MELVYL online catalog, the CAB Abstracts and Compact Cambridge Life Sciences Collection databases in CD-ROM format, the MEDLINE and Current Contents databases available on the MELVYL system, and bibliographic file management software programs. Students are introduced to the concepts of Boolean searching and are furnished opportunities for "hands-on" practice. Computer terminals in the public area of the Carlson Health Sciences Library as well as microcomputers in the library's Microcomputer Facility are employed in the class. Teaching the use of computerized resources is integrated with instruction covering library catalogs, journals, indexing and abstracting resources, bibliographies, personal filing systems, and reference/statistical sources.

As more information resources in biomedicine have become available in electronic format, there has been a growing need for animal health professionals to become knowledgeable about the nature and use of these resources. Animal health information specialists have an important role to play in assisting veterinarians and other animal health professionals in learning about and utilizing these electronic resources.

Librarians at the Carlson Health Sciences Library (CHSL) at the University of California at Davis (UC Davis) have assumed this role as they have become increasingly active in instructing users how to use electronic information resources. They offer individualized instruction at the reference desk as well as teaching on a more formalized basis as visiting lecturers to classes and at workshops for faculty, students, and staff offered at CHSL. Librarians also serve as lecturers in the Epidemiology and Preventive Medicine (EPM) Department in the School of Veterinary Medicine for the 3-unit credit course entitled EPM 401: Biomedical Information Resources and Retrieval.

EPM 401 is a required course for veterinarians in the Master's in Epidemiology and Preventive Medicine (MPVM) program in the School of Veterinary Medicine. The MPVM program is also open to students in the School's Doctor of Veterinary Medicine (DVM) program who may enroll concurrently in the MPVM program in a special "dual degree" option and receive both the DVM and MPVM degrees. The EPM Department's 1990 Academic Plan Epidemiology and Preventive Medicine states the purpose of the MPVM program: "The MPVM curriculum prepares veterinarians to investigate diseases in animal populations and to design, pursue, and evaluate disease control and other veterinary service programs."(1) The department's Plan also presents a brief history of the program:

The MPVM degree program, the School's only graduate professional degree program, was initiated in 1966. Over the intervening 23 years, the MPVM program has achieved distinction. Veterinarians from 71 countries have enrolled in the program and 441 have received the MPVM degree. Almost all of them had subsequently made excellent careers based on the education they received through the MPVM
program. The most outstanding academic leaders in veterinary epidemiology, many of the best administrators of veterinary programs and progressive practitioners, acquired important components of the skills and knowledge through the MPVM and/or Ph.D. studies in the Department of Epidemiology and Preventive Medicine. The MPVM program is unique and has no counterpart in the world.(2)

It is to the credit of the EPM Department that its faculty recognized the importance of including a course on biomedical information resources and retrieval as part of the MPVM curriculum. It is also noteworthy that the faculty respected the expertise and knowledge of librarians in agreeing that librarians serve as sole instructors for such a course. This decision was based on a history of cooperation between CHSL and the EPM Department. This cooperation has continued to be highly positive and successful throughout the years. Cognizant of the time and effort required to teach the EPM 401 course, the EPM Department began funding a .25 FTE Assistant Librarian position in CHSL’s Reference Section during the fall quarter when the course is offered. This position compensates for a large portion of the time librarians devote to preparing and teaching the course.

Throughout the history of the course, one or two librarians have been responsible for teaching the class and have served as lecturers in the EPM Department. Since 1986, Jo Anne Boorkman, Head of CHSL, and Carolyn Kopper, Head of Reference Services at CHSL, have served as lecturers for the course. The librarians have been responsible for the structure, content, and grading of the course. They have organized the course in a manner so as to provide students with a solid introduction to biomedical information resources and retrieval with plenty of opportunity for hands-on use of resources in electronic or print format. They have also attempted to meet the instructional needs of students with diverse backgrounds and library skills.

The majority of the combined DVM/MPVM students enrolled in the course have been from the United States, while the majority of MPVM only students have been from other countries. For example, in 1989/90 there were 33 students in the MPVM program, including eight students in the combined MPVM/DVM program. Fourteen of the students were from the United States. Nineteen students were from other countries, including Bangladesh, Botswana, Brazil, Germany, Greece, Holland, India, Malaysia, Mexico, Nigeria, Pakistan, Romania, and Thailand.(3)

In organizing the EPM course, the librarians decided to teach the students about the resources available to them during their sojourn at UC Davis and to use CHSL as a laboratory. The librarians reasoned that the students could utilize these resources for completing their research projects required for the MPVM degree. After earning the MPVM degree, many students remain at UC Davis to pursue Ph.D. degrees in Epidemiology or Comparative Pathology. These students could also employ the resources discussed in the EPM course. International students returning to their home countries would probably not have access to all the biomedical resources that were available to them at UC Davis, but they would at least know about a variety of resources and would be better able to make effective use of whatever resources were available to them in their countries.

In order to allow for ample opportunity for the student to have hands-on practice using resources, the course was structured to include a weekly three-hour laboratory session in CHSL. This laboratory session followed a 1-hour lecture and a 1-hour discussion period. Class size normally was greater than 15 students, which necessitated dividing up the students into two laboratory sections. This weekly schedule fulfilled the requirements for a three-unit credit course and allowed the students time in CHSL to complete their assigned exercises with the instructors present to answer questions.

The course was organized to furnish an overview of biomedical resources and retrieval with an emphasis on veterinary resources. To this end, ten lectures were scheduled for the course. Currently, the lectures are: 1) Course Organization and Objectives/Overview of the Biomedical and Veterinary Literature; 2) Library Catalogs: Author/Title; 3) Library Catalogs: Subjects; 4) Journals; 5) Indexes; 6) Abstracts; 7) Bibliographies; 8) Automated Information Services; 9) Personal Filing Systems; and 10) Reference/Statistical Sources. During the course the students complete six laboratory assignments reviewing the concepts discussed in Lectures 2, 3, 4, 5, 6, and 10. They also are required to complete the following two projects: 1) a review of journals; and 2) preparation of a bibliography. Two quizzes are also required in the course. For the purpose of grading, each laboratory assignment is worth 5% of the final grade, each of the two quizzes is worth 10% of the grade, Project 1 (journals) is worth 30%, and Project 2 (bibliography) is worth 20%. As more resources became available in electronic format at CHSL, they were incorporated into the course. The structure and content of the course have been changed several times to allow for coverage of the new computerized tools.
On June 30, 1989, CHSL closed its card catalog and began relying on the University of California’s MELVYL online catalog as its online catalog. Lectures 2 and 3, Library Catalogs: Author/Title and Library Catalog: Subjects, were substantially altered to focus on the online catalog. The laboratory sessions covering library catalogs were changed to require the students to employ the online catalog to complete the laboratory assignments. The students could access the MELVYL online catalog via dumb terminals in the public area of CHSL or on the microcomputers in the Microcomputer Facility in CHSL.

Two of the main changes in the lectures and laboratory assignments concerned data capabilities in the MELVYL online catalog not available in CHSL’s old card catalog. While the card catalog lists materials housed only at CHSL, MELVYL lists books at libraries at the nine University of California campuses and the California State Library, as well as periodicals at the University of California, the California State Universities, Stanford University, the University of Southern California, the California State Library, the Getty Center for the History of Art and the Humanities, the Center for Research Libraries, and the California Academy of Sciences. The MELVYL system also offers the ability to search for any word from the title or subject heading for a book or periodical, whereas the card catalog requires one to know the first word of a title or subject heading in order to perform a search. These are some of the characteristics and capabilities of the MELVYL system’s online catalog that were covered in lectures and laboratory sessions.

Lectures 5 and 6 and the laboratory assignments which cover indexes and abstracts were somewhat altered to encompass electronic formats. Students currently must complete a couple of exercise questions using the portion of the MEDLINE and Current Contents databases that were mounted on the MELVYL system. However, in this part of the course, emphasis is placed on a familiarization with the printed indexes and abstracts upon which the indexes and abstracts are based. The indexing and abstracting process is also highlighted, as well as differences among the different indexes and abstracts. Printed indexes and abstracts are emphasized with a goal of increasing the students’ understanding of the structure and content of the electronic versions of these reference tools.

With the newly acquired knowledge of printed indexes and abstracts, the students are well prepared for Lecture 8, Automated Information Services. Lecture 8 has been changed over the years as databases have become available on the MELVYL System and also in CD-ROM format at CHSL, as well as online through vendors. Students have been offered more options for hands-on searching in the laboratory session as databases have been made accessible to them in more than one mode of access. In 1991, students had the choice of employing databases available through BRS, the MELVYL System, and on CD-ROM. This choice allows the students to gain experience utilizing more than one mode of access for searching databases. This experience may be especially applicable for the international students who may have only one of the modes of access at hand in their home countries. Access on CD-ROM has proven to be practical in developing countries and rural areas. (4, 5) The databases most often searched by the students have been CAB Abstracts, MEDLINE, and BIOSIS.

The Microcomputer Facility serves as the laboratory for hands-on use of electronic databases. There are eleven microcomputers in the facility, seven of which may be employed for online searching for the class. In order to provide a microcomputer for use by each student, the number of laboratory sessions is doubled with each session lasting two hours. Each student may sign up for his/her preferred session. The seven microcomputers utilized for searching are connected to a 3COM+ local area network. Menus on the network allow the students to search databases available on the MELVYL System or to access databases available through online vendors. In addition, one or two CD-ROM workstations are brought into the Facility for use in the laboratory sessions.

In planning the course, it was felt that the students should have the opportunity to conduct their online searches at no charge. The cost of the online searching is supported by an Instructional Use of the Computer grant funded by UC Davis. This support allows the students to practice online searching without the pressure of a meter running; it encourages them to experiment with a variety of databases and search strategies. In the laboratory session, the students may perform searches on subjects of their own choice. Often the students choose topics on which they are conducting research for their projects that are required for the MPVM program. Thus, this opportunity to perform online searching is frequently tied directly to the students’ current research and to other parts of the MPVM program.

The lecture and laboratory session cover a number of points related to online searching. Boolean logic, search strategies, and the use of controlled vocabularies are stressed. As more electronic resources...
have become available, these emphases have remained constant. However, with more electronic databases accessible on the MELVYL System, via CD-ROM, or through online vendors, there has been a need to assist students in employing an increasing variety of searching software programs.

The instructors believe that hands-on practice searching electronic databases to be of prime importance. The hands-on practice fortifies the students' understanding of the points covered in the lecture. Their searching on subjects of their choice that can be directly applied to their own research further strengthens their learning experience.

In the past few years, more students have begun downloading their online search results. This ability to download results naturally has generated interest in transferring the downloaded results into reprint or bibliographic file management software programs. Lecture 9 on personal file management has been altered radically as students have become more interested in software programs to manage their reprint files to format their bibliographies. The lecture has metamorphosed from a discussion of manual methods for filing and retrieving reprints to an electronic demonstration of one of the software packages. Handouts accompanying the lecture include a chart comparing the various bibliographic file management software programs available on the market. This practical chart was prepared by Judith Welsh, a reference librarian at CHSL. Optional laboratory sessions for this part of the course were added in 1990 to give students an opportunity for hands-on practice using one of the available software packages. Thus far, the students have been introduced to the Pro-Cite software package because students enrolled at the University of California at Davis may purchase this package at a 75 percent discount at the campus bookstore.

The lectures and laboratory sessions addressing journals (Lecture 4), bibliographies (Lecture 7), and reference/statistical sources (Lecture 10) have been less affected by the emergence of electronic resources than have been the other lectures and laboratory sessions noted above. Journals published in electronic format are mentioned in Lecture 4. In the near future, students may have the opportunity to read the electronic journal entitled Current Clinical Trials that has been ordered for CHSL's collection. Lecture 7 has covered the nature and compilation of bibliographies that are normally in print format. In the process of compiling their own bibliographies for the course's bibliography project, most of the students have utilized automated databases on the MELVYL system, on CD-ROM, or via online vendors. Lecture 10 has focused on printed reference and statistical reference sources.

The structure and content of the course have evolved to reflect the emergence of new electronic tools as well as the changes and improvements in these tools. As the producers of these electronic resources constantly strive to create new products and to improve existing ones, new features and capabilities appear. When CAB International produced a CD-ROM version of CAB Abstracts, discussion and use of this new product were readily incorporated into the course. Staff at the Division of Library Automation at the University of California continually improve the MELVYL system by mounting new databases on the system or adding new search features. Mounting the MEDLINE database on the MELVYL system had a significant impact on the EPM 401 class; new features in MELVYL, such as the ability to display the library locations for the periodicals cited in MEDLINE and Current Contents, have been quickly included in the course.

There have been recent cutbacks in library staffing due to budgetary constraints. In order to mitigate the effects of these cutbacks and to allow for more sharing of the instructional workload for the EPM 401 course among librarians at CHSL, two other librarians began teaching portions of the course in 1991. Rebecca Davis, CHSL's Online Services Coordinator/Reference Librarian, was responsible for lectures and laboratory sessions addressing indexes, abstracts, and automated information services. Judith Welsh, Reference Librarian, was responsible for the lecture and laboratory sessions on personal filing systems. More sharing of the instructional workload for the class has been beneficial. The expertise of more instructors has been made available to the students. In addition, the different teaching styles and skills of the instructors have also made the course more interesting.

The literature has reported end-users' satisfaction with employing electronic resources for information retrieval. Students in the EPM 401 class have been no different in showing their satisfaction with these tools. They have enthusiastically embraced resources available in electronic format, normally preferring electronic formats over print ones. The EPM 401 course has been successful through the years. The Epidemiology and Preventive Medicine Department has recommended that all DVM and graduate academic students be required to take EPM 401. The students who have taken the course continue to use and benefit from the
information skills they acquired in the class during their sojourn at UC Davis. It is hoped that they also continue to apply this expertise after they leave the University.

REFERENCES

1. 1990 Academic Plan Epidemiology and Preventive Medicine. Davis, California: Department of Epidemiology and Preventive Medicine, School of Veterinary Medicine, University of California, Davis, 1990:37.

2. Ibid.

3. Ibid.:40.


