Library use and information-seeking behavior of veterinary medical students revisited in the electronic environment

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Veterinary medical students at Iowa State University were surveyed in January of 1997 to determine their general use of the Veterinary Medical Library and how they sought information in an electronic environment. Comparisons were made between this study and one conducted a decade ago to determine the effect of the growth in electronic resources on student library use and information-seeking behavior. The basic patterns of student activities in the library, resources used to find current information, and resources anticipated for future education needs remained unchanged. The 1997 students used the library most frequently for photocopying, office supplies, and studying coursework; they preferred textbooks and handouts as sources of current information. However, when these students went beyond textbooks and handouts to seek current information, a major shift was seen from the use of print indexes and abstracts in 1987 towards the use of computerized indexes and other electronic resources in 1997. Almost 60% of the students reported using the Internet for locating current information. Overall use of electronic materials was highest among a group of students receiving the problem-based learning method of instruction. Most of the students surveyed in 1997 indicated that electronic resources would have some degree of importance to them for future education needs. The electronic environment has provided new opportunities for information professionals to help prepare future veterinarians, some of whom will be practicing in remote geographical locations, to access the wealth of information and services available on the Internet and Web.

A decade ago an original study was undertaken to examine the library use and information-seeking behavior of veterinary medical students at Iowa State University's (ISU) College of Veterinary Medicine [1]. Since that time the Pew National Veterinary Education Program issued its report, *Future Directions for Veterinary Medicine,* with the intent to encourage curriculum revisions in United States veterinary schools in response to the changing practice of veterinary medicine. A key phrase for information professionals in the Pew report was the recommendation that veterinary education focus "on the ability to find and use information rather than the accumulation of facts" [2].

Coincidentally, in the past decade, the computer revolution has introduced dramatic new developments, which have had a significant impact on the availability of information for veterinarians. Many reports [3–10] have described the use of new computer-based tech-

nologies in veterinary practices. Pion and Ferguson [11] place the actual number of veterinary practices online to date as being "only a small minority (perhaps 10%) of the veterinary profession." However, they go on to say that "On-line communications have great potential for helping the veterinary profession overcome the decentralized hospital model and the geographic and time barriers that have inhibited community building in the past." The American Veterinary Medical Association (AVMA) recognized the potential of telecommunication as a means of information dissemination and in 1994 formed the Network of Animal Health (NOAH), available through the CompuServe online service. Even earlier, in 1990, Pion and Ferguson founded the Veterinary Information Network (VIN), available on America Online, as a forum for practice support services, continuing education, and a searchable information database. Both of these services purport to provide fast and easy access to a broad spectrum of information targeted specifically to the veterinary profession. "The Information Age is definitely here, and more and more veterinarians are finding that a computer system is as necessary to their practice as a stethoscope" [12]. If this was true, then computer skills for accessing information could be conjectured to be of utmost importance to today's veterinary medical student. Veterinary medical libraries, including ISU's, have "refocus[ed] their mission to serve students, faculty and alumni" [13], away from traditional printed materials to providing information electronically. What did veterinary students know about accessing information in the electronic environment? As was the case a decade ago, little documentation existed in the literature today concerning veterinary students' use of library facilities or how they attempt to locate information. The present study was undertaken to examine the ISU veterinary students' present day information-seeking behaviors, centering on the students' use of computerized resources, as well as to evaluate their use of more traditional library services at ISU's Veterinary Medical Library. The extent to which students anticipated use of electronic resources following graduation from veterinary school was also of interest as an indication of their commitment to these resources in the future.

SURVEY METHODOLOGY

The authors' 1988 report served as a basis for the present study. The 1997 survey population was similar to the 1987 group of students by including all four classes of students enrolled in the professional curriculum at the ISU College of Veterinary Medicine in January 1997. Those students who had completed ISU's required bibliographic instruction course prior to veterinary school were asked to identify themselves. Veterinary students with advanced degrees (masters of science and doctor of philosophy) were also asked to identify themselves. An additional group of nine second-year students who were enrolled in the Rural and General Practice Option (RGPO) curriculum were surveyed. These students have spent four semesters of the eight-semester professional program participating in the problem-based learning method of instruction, which took place in "small group, case based, student centered, problem based learning activities" [14]. An assessment of whether this alternate program of learning contributed to any differences in these students' information-seeking behavior from the students enrolled in the traditional professional program was made.

The survey instrument was composed of fifty-eight categorical questions, which included inquiries about the students' general use of the ISU Veterinary Medical Library facilities; approaches to seeking current information, use of indexes, abstracts, and electronic resources; and anticipated resources for acquiring information when in practice. Most of the questions from the original survey in 1987 were repeated, but the present survey was enhanced with questions that were specific to accessing information in the electronic environment. The time frame of the survey was meant to encompass a student's entire experience while enrolled in the College of Veterinary Medicine.

A difference in methodology distinguished this study from the previous one. To ensure a higher survey return rate in January of 1997, the survey was distributed to the majority of the students in the classroom, rather than being placed in their mailboxes as was the case with the 1987 study. However, surveys were placed in the mailboxes of approximately one-half of the 1997 fourth-year students who were on off-site or on non-scheduled blocks. Minimizing the potential for nonresponse bias by increasing the return rate through classroom presentation of the survey instrument was considered to be more important than simply replicating the previous methodology. This change did not preclude direct comparisons of similarities or differences between the two sets of veterinary students (1987 and 1997) because the findings in both studies were given as a percent of the total number of students surveyed. Statistical analysis included the calculation of frequencies as percentages. The statistical test of least significant difference was used at the 0.05 level of significance to indicate statistical differences between groups of students.

Three hundred twenty-eight questionnaires were returned from a total of 398 enrolled students, for an overall return rate of 82%. Class representation of the total return was 30% first-year students (n = 99), 28% second-year students (n = 91), 27% third-year students (n = 88), and 15% fourth-year students (n = 50). The survey return in the fourth-year group included several veterinary foreign exchange students. Thirty-

Table 1
Student activities in veterinary medical library

		Frequency of response (%)^				
	Survey year	Every day	2–4 Times per week	Once per week or less	None	n
Using photocopier	1997	6	54	39	2	327
	1987	3	55	41	1	196
Using office supplies	1997	8	43*	43*	6	328
	1987	3	28	57	12	196
Studying coursework	1997	10	34	34	22*	328
	1987	8	45	34	12	196
Assigned reading/reserve materials	1997	1	27	62	10	328
	1987	1	30	65	4	196
Seeking information for coursework	1997	2	22	66	10	328
	1987	1	20	64	15	196
Using SCAVMA "old test" file	1997	1	7	68	24	328
	1987	1	12	65	22	196
Seeking information for research	1997	1	10	55*	34*	327
	1987	1	5	31	63	196
Leisure reading	1997	2	14	33	50*	327
	1987	4	23	38	35	196
Extracurricular journal reading	1997[a]	2	14	52	33	328
Seeking information for case presentation course VCS385/495	1997[a]	3	9	26	62	321

^ Percentages may not equal 100% due to rounding.
[a] No 1987 data available.
* Significant difference detected at the 5% level. The least significant difference at the 5% level is approximately 10%.

four percent of the students held no previous undergraduate degree, 63% held a bachelor of sciences or arts degree, 3% held the masters of sciences or arts degree and 1% held the doctor of philosophy degree.

FINDINGS

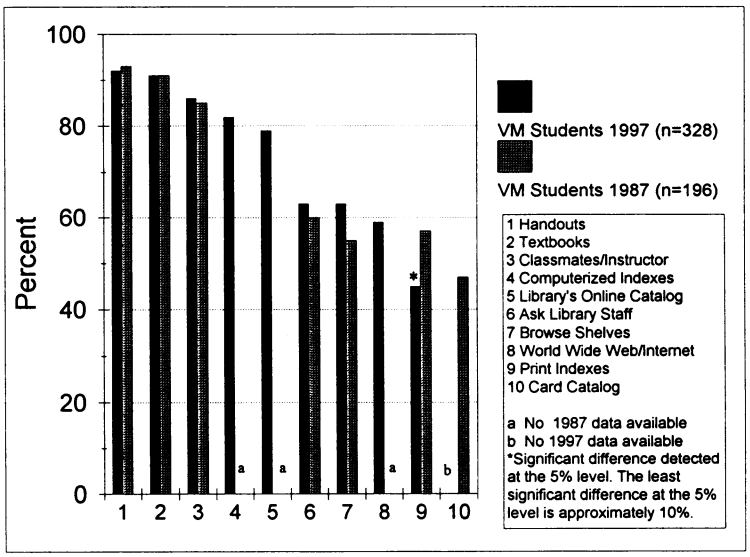
Library activities

Students were asked to mark on a checklist the frequency with which they engaged in ten library activities (Table 1). As in 1987, use of the photocopiers and office supplies formed the primary activities for which the 1997 students used the library. General studying of coursework was also a common activity, although a significantly greater number of 1997 students said that they never used the library to study, 22% in 1997 as compared with 12% a decade ago. This might be a direct reflection of reduced study space available as the collection has expanded. Although most students used the library to seek specifically asssigned reading or reserve materials and to seek information related to coursework or research, the majority indicated that this occurred once per week or less. Leisure use of the library was down significantly (15%) from a decade ago. A new question, not asked on the previous survey, reflected the additional requirement in the veterinary curriculum that all four classes be exposed to clinical cases through the seminar course, Veterinary Clinical Sciences 385/495. When asked how often they used the library to obtain information for this course, not surprisingly, the fourth-year class, which is responsible for the actual presentation of clinical cases, elicited the largest response, with 86% of the class indicating that they spent one visit per week or more on this activity.

Seeking current information

History repeated itself when students were asked which resources were used to find current information on a topic or assignment that was new to them. While handouts, textbooks, and asking classmates or instructors continued to serve as primary resources, the 1997 students also indicated substantial use of the computerized indexes and the library's online catalog (Figure 1). Not only did the ISU online catalog have holdings, location, and call number information for journals listed in the computerized indexes, but it also included current (in process or on order) titles that were unavailable in the card catalog. The Web or Internet was reported by 59% of the 1997 students as a resource for finding current information. Print indexes and abstracts were the least used resource of the students, particularly the fourth-year class, 90% of whom reported using the computerized indexes and abstracts, while only 32% of this class said that they used the print products. When the students were asked which one of the resources that appear in Figure 1 was their first choice in looking for current information, 38% named textbooks, 26% computerized indexes, 16% handouts, 8% the ISU Library online catalog, 4% the Web or Internet, 2% print indexes and abstracts, 2%

Figure 1
Resources used by students for locating current information



classmates or instructors, 2% browsing the shelves, and 1% library staff. It was gratifying to note that, although asking the library staff for assistance was not the first choice of students, 63% of them said that they consulted with the library staff at some point in searching for current information.

Indexes/Electronic resources

Students were asked to indicate use of six print indexes and abstracts and their computerized equivalents. As shown in Table 2, the computerized indexes, VETCD, MEDLINE, and BEASTCD, proved to be popular with an average of 82% of students indicating use from one to six or more times, while an average of only 16% of students utilized the print equivalents. The *Current Contents: Agriculture, Biology & Environmental Sciences,* which includes veterinary journals, showed similar usage between the print and computerized versions. Taken together, these results showed a dramatic shift from use of the print indexes to computerized indexes during the decade separating the 1987 and 1997 studies, as well as an overall increased use of indexes most probably due to students accessing them via computer. The 1987 group of veterinary students' highest indicated use of a computerized index, *Veterinary Bulletin,* was measured at 16% use of one to six or more times. Like their counterparts in 1987, the twelve 1997 veterinary students who held advanced degrees used the indexes and abstracts more in seeking current information than did the general body of students.

The extent to which the veterinary students utilized other electronic resources was also assessed. The questionnaire asked whether they were aware of any of a list of specifically named computer services, Web sites, electronic mail lists, and newsgroups. Sixty-two percent of students indicated that they were aware of at least one of the following electronic resources: (1) computer services (NOAH—the American Veterinary Medical Association's Network of Animal Health; VIN—Veterinary Information Network, a privately owned service); (2) Web sites (NetVet and Electronic Zoo); (3) electronic mail lists (VETSTU-L, VETMED-L, VETPLUS-L); and (4) veterinary newsgroups. Thirty-eight percent of the students replied that they were not aware of any of the resources named above. Broken down by veterinary school class, these results were: 51% first-year, 35% second-year, 33% third-year, and 26% fourth-year. Few students, however, reported use of the specifically named electronic resources identified above; therefore, they were possibly utilizing other electronic tools, perhaps more topical or specific, that are available through the Internet. When asked where they had learned about electronic resources, a variety of answers were given, led by "Other vet students" (19%) and followed by "Other" (13%), "Library staff" (10%), "Vet journals/books" (9%) and "Vet school" (6%). The "Do not use/Does not apply" answer was checked by 41% of the respondents.

Bibliographic instruction

The ISU-required undergraduate bibliographic instruction course had been completed by 38% of the students prior to admission to veterinary school. An-

Table 2
Student use of computerized and print indexes/abstracts

		Frequency of response (%)^				
	Survey year	0 Times	1–2 Times	3–5 Times	6+ Times	n
Computerized						
MEDLINE (Human Medicine)	1997	15*	20*	17*	47*	326
	1987	96	1	1	2	196
VETCD (Veterinary Medicine)	1997[a]	14	19	18	48	326
BEASTCD (Animal Science)	1997[a]	21	20	18	40	326
AGRICOLA (Agriculture)	1997[a]	36	25	17	21	326
Biological & Agricultural Index	1997[a]	39	30	12	19	326
Current Contents	1997[a]	59	19	12	9	325
Veterinary Bulletin	1987[b]	85	12	3	1	196
BIOSIS	1987[b]	96	2	1	2	196
Print						
Biological Abstracts	1997	72	13	8	6	326
	1987	75	16	5	4	196
Veterinary Bulletin	1997	83*	13*	3*	2	326
	1987	38	38	16	8	196
Index Medicus	1997	85*	10*	4	2	326
	1987	54	29	7	10	196
Index Veterinarius	1997	86*	10*	2*	2*	324
	1987	29	32	23	16	196
Current Contents: Agricultural, Biology & Environmental Sciences	1997[a]	60	21	8	10	326
Current Contents: Life Sciences	1997[a]	73	16	6	5	326

^ Percentages may not equal 100% due to rounding.
[a] No 1987 data available.
[b] No 1997 data available.
* Significant difference detected at the 5% level. The least significant difference at the 5% level is approximately 10%.

other 24% had received some type of library orientation, while 39% reported having had no library instruction at all. Beginning with the 1992 academic year, the ISU bibliographic instruction course changed from a lecture-based course to a self-paced, computer-based tutorial, which included exercises in the use of computerized indexes. To record the possible influence of this new presentation method and exposure, the students were asked whether they had taken the course prior to 1992 (the pre-1992 group) or 1992 or later (the post-1992 group).

As with the 1987 study, there was little difference between students with formal bibliographic instruction and those without in the ways that they sought information or used library services. The exception was the pre-1992 bibliographic instruction group. This group, which received instruction only in print indexes through the ISU course, named computerized indexes as their most important resource in finding current information, and indicated the highest usage of the indexes, particularly VETCD, BEASTCD, and MEDLINE. The pre-1992 group included 61% upper class students, as compared to 25% upper class students in the post-1992 group. It could be conjectured that the need for information was driven by the curriculum, as the third and fourth-year students moved from the initial two years of the more didactic, basic science courses to the more interactive range of clinical experiences during the last two years of the veterinary program. For example, the fourth-year students were involved with clinical rotations during this period and would be interested in finding current information on particular cases.

Rural and General Practice Option students

The problem-based learning (PBL) method of instruction, used increasingly in medical schools [15–17], has been implemented as an experimental curricular option at the ISU College of Veterinary Medicine. The objective of PBL is to teach problem-solving skills to students as well as to integrate the basic and clinical sciences into an educational whole. Students enrolled in this option, which during the spring 1997 semester consisted of ten second-year students, are expected to research needed information relating to their classes in preparation for presentation to the group. Surveys returned from nine of these students suggest that the information-seeking behavior of this pilot group of veterinary students is somewhat different from that of the students in the traditional curriculum.

When asked how many courses during the fall semester required use of the library's print or electronic materials other than reserve, most of the traditional

Table 3
Information resources for future education needs

		Frequency of response (%)^					
	Survey year	Not important	Somewhat important	Important	Quite important	Very important	n
Colleagues	1997	1	3	13*	23*	60*	321
	1987	0	5	23	39	33	196
Continuing education courses/ workshops	1997	1	3	13	31	52	316
	1987	0	2	20	34	45	194
Conferences/meetings	1997	1	3	17	33	45	322
	1987	0	3	20	39	38	196
Personal library	1997	3	7	27	21*	42*	323
	1987	3	15	32	49	1	196
Veterinary/university library	1997	9	27	37	18	10	321
	1987	6	35	34	16	9	196
World Wide Web	1997[a]	8	15	34	22	21	319
E-mail lists	1997[a]	10	16	32	23	20	319
Computer services	1997[a]	11	17	38	17	18	320
Index databases	1997[a]	12	20	34	19	15	320
Newsgroups	1997[a]	16	23	31	16	14	315
Computerized information	1987[b]	20	34	34	5	6	196
Public library	1987[b]	30	40	21	6	4	196

^ Percentages may not equal 100% due to rounding.
[a] No 1987 data available.
[b] No 1997 data available.
* Significant difference detected at the 5% level. The least significant difference at the 5% level is approximately 10%.

curriculum students indicated one or two courses, while the majority of RGPO students said three to five courses. All of the RGPO students said that they spent two to four times per week or more seeking information related to their coursework, while only 23% of their second-year classmates enrolled in the traditional curriculum did so. They were also more likely to use the Web or Internet (89%) than their counterparts (62%) in seeking current information. Use of the computerized indexes and the library's online catalog were the first choices of the RGPO students for seeking current information, but their second-year traditional curriculum classmates named textbooks first, followed by computerized indexes. The RGPO students consistently indicated the highest use of all the computerized indexes. Little or no differences were seen between the RGPO students and the traditional curriculum students in the use of print indexes, electronic resources named in the survey, or projected information needs for future education.

Although the results from this small pilot group of nine RGPO veterinary students must be viewed with caution, they agree with reported results from studies of medical students involved in the PBL method of instruction. These veterinary students find that more of their coursework required use of library resources. They appear to demonstrate a more independent and aggressive approach to seeking information, relying on computerized indexes and other electronic resources for current information in addition to textbooks and handouts.

Advanced degree students

Like their counterparts in 1987, the twelve 1997 veterinary students who held advanced degrees (AD) tended to use the indexes and abstracts more in seeking current information than did the four student classes as a whole. Ninety percent of the 1997 AD students chose computerized indexes as their first or second choice in seeking current information, while 38% of their classmates indicated textbooks as the most often used resource, followed by handouts as the second choice (30%). This agreed with the 1987 data and, again, demonstrated the greater experience of the AD students in concentrating on the indexes as a resource for current information. Under the category "Future education information needs," the AD students saw a greater role for the veterinary and university libraries, index databases, and the Web in fulfilling those needs than did the general student body.

Resources for future education

Most of the veterinary students conceded that the electronic resources listed in the survey would have some degree of importance to them for future education needs, but not as much as the traditional means of colleagues, continuing education courses or workshops, conferences and meetings, or their personal library (Table 3). About two-thirds of the students felt that a veterinary medical library could continue to serve their future education needs following graduation. Over 40% of students saw the Web and electronic

mail lists as either very important or quite important to their future education, while approximately 35% considered computer services and computerized indexes as being useful to their future education needs. Although no direct comparisons could be made with the 1987 survey, only 11% of the students responding 10 years ago believed "computerized information" in general, would be either very important or quite important to education needs following graduation.

DISCUSSION

The basic patterns of library activities and information-seeking behavior utilized by the 1987 veterinary students—using photocopier and office supplies, studying, seeking reserve materials, and seeking information for courses—were replicated by the 1997 group of students. However, when the 1997 students went beyond texts and handouts to seek current information in indexes and abstracts, a major shift was seen from the use of print indexes and abstracts to computerized products. This observation was not surprising given the proliferation of available online indexes and abstracts during the past decade. The shift to using computerized products included use of the Internet for finding current information by 59% of the students as measured by the survey instrument.

Ken Boschert, D.V.M., creator of the award-winning NetVet and Electronic Zoo Internet sites comments that,

> "with today's pace of life, no one is going to be happy with a 6 month turnaround on information exchange. . . . the more recent veterinary graduates are going to be much more receptive to computer networking, since they will have had exposure in school and many will want to use this medium to keep in touch both professionally and personally [18].

The results of the present study show clearly that the majority of ISU veterinary students are receptive to using electronic resources.

This interest in electronic resources by veterinarians has great implications for information professionals. They have an opportunity to assist veterinary educators who choose to teach information retrieval skills that utilize online and end-user search systems. Web, Internet, and database instruction may be incorporated into the material of existing courses, or taught as a separate course (or workshop) targeting veterinary resources. Instruction may be presented to all students in a sequential manner, or to just the fourth-year students as reported by Bruce [19]. Bruce's report suggests a variety of ways in which library professionals may be involved with veterinary educators in providing students with fundamental search skills. Present day students would benefit from more exposure to today's electronic technologies as another means of providing for their information needs following graduation. Specific disadvantages that are inherent to computer networking, such as lack of peer review, could be addressed as well.

Particularly important to consider is the decentralization or isolation of many veterinary practices from other practitioners and information resources. Conferring about cases on a regular basis need no longer be limited primarily to clinicians in academia or industry [20–22]. Testimonials about the benefits of these online interactions abound in veterinary trade journals. An excellent example appears in a recent issue of *Hoard's Dairyman* under the title, "The net helped solve this Pasturella mastitis problem." In this instance, the veterinarian connected via e-mail to "several authorities from around the country" who, in the course of one day, were able to advise him about an unusual form of mastitis. "Formerly," the practitioner says, "obtaining the answers would have required numerous time consuming phone consultations, textbook research, and written inquiries to colleagues. In this case, it required a total of three e-mail messages" [23]. The Internet can now serve as a gateway to university online catalogs; to indexes such as MEDLINE, AGRICOLA, CAB ABSTRACTS; online journals and newsletters; commercial computer services; and electronic mail groups such as VETPLUS-L (vet professionals list), which has over 1,000 subscribers around the world [24]. The computer services NOAH and VIN both offer continuing education materials online, although, as yet only limited continuing education credit is allowed by most state licensing boards and the AVMA [25]. Cultivation of veterinary students' interests in these electronic resources by veterinary educators and librarians, will ensure that all graduating students have the necessary technical expertise to navigate the online world and can provide for students a means of finding information particularly well-suited to dealing with rapid advances in the profession. As detailed by Lee [26] and Coffee [27], veterinary medical libraries can contribute in a variety of ways to the future education needs of veterinarians by providing help identifying and searching remote databases, outreach services, and circulation and interlibrary loan privileges.

CONCLUSION

Whether by curriculum design or by student preferences for new library technology, or both, the increased awareness and use of computerized indexes and other electronic resources among the 1997 students was encouraging to see. The majority of these students seemed to perceive the importance of looking for information, especially current information, beyond textbooks and handouts. This was particularly evident in the RGPO group of students. Electronic resources could play an obvious role in reducing the in-

formation isolation of many veterinary practices. Ideally, the educational process could now focus on those students who indicated that they were not aware of any of the electronic resources, particularly the fourth-year students who soon would become practitioners and could most immediately benefit from the wealth of information that computerized resources have to offer those who may be practicing in more remote geographical locations.

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APPENDIX A

TO: **Vet. Med. Student**

FROM: **Nancy Pelzer, Parks Library**
Joan Leysen, Parks Library
William Wiese, Vet. Med. Library

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We are conducting a survey of your use of information resources available in the Vet. Med. Library. We would like to know how you are finding information needed to support your course work and on clinical topics of interest to you.

While your participation in this survey is voluntary, your response to the study questions is important for an accurate assessment of Vet Library services and resources. Data will be summarized in group form, ensuring individual confidentiality.

Would you please take a few minutes to answer the survey questions. Your cooperation is appreciated.

VETERINARY STUDENT LIBRARY USE SURVEY

Please answer each question with the response that best describes your use of the Vet. Med. Library and its resources. This survey does NOT include use of Biomedical Communications. Use a black No. 2 (soft) pencil on the attached answer sheet and be sure to fill in the appropriate circles completely.

1. Your class:
   a. VM1 b. VM2 c. VM3 d. VM4
2. Indicate the highest level of education or degree completed:
   a. Undergraduate coursework b. B.S./B.A. c. M.S./M.A. d. Ph.D.
3. Indicate whether you are also currently enrolled in any of the below programs:
   a. B.S./B.A. b. M.S./M.A. c. Ph.D. d. None of these
4. What type of library instruction have you received prior to vet school?
   a. Library 160 course at ISU prior to Fall 1992 b. Library 160 course at ISU, Fall 1992 or later
   c. Orientation/course in college, other than Library 160 d. No course (self-taught)
5. How often have you received library assistance or instruction at the Vet. Med. Library?
   a. never b. once or twice c. three to five times d. six or more times
6. How many of the courses you took during the Fall semester required you to use print or electronic library materials (other than reserve)?
   a. none b. one or two c. three to five d. six or more

How frequently do you spend time in the Vet. Med. Library on the following activities?

	every day	2–4 times a week	once/wk or less	not at all
7. Studying coursework	a	b	c	d
8. Reading specific articles or books assigned by instructors, including reserve materials	a	b	c	d
9. Utilizing the SCAVMA test file	a	b	c	d
10. Looking for information for use in VCS 385/VCS 495 and/or other clinical cases	a	b	c	d
11. Looking for information for use in all other coursework	a	b	c	d
12. Looking for information for use in research	a	b	c	d
13. Reading veterinary/animal sci. Journals on your own, not as part of a class assignment	a	b	c	d
14. Leisure reading (newspapers, popular magazines)	a	b	c	d
15. Using the photocopy machines	a	b	c	d
16. Using the hole punch, stapler, tape, pencil sharpener, etc.	a	b	c	d
17. Getting a book or article not available in the Vet. Med. Library	a	b	c	d
18. Studying	a	b	c	d

To find *current* information on a topic or assignment that is new to you, do you use the following?

19. Textbooks assigned for the course	a. Yes	b. No
20. Handouts/course material other than textbooks	a. Yes	b. No
21. ICAT (ISU Library's online catalog)	a. Yes	b. No
22. Printed indexes/abstracts	a. Yes	b. No
23. Index databases on computer (MEDLINE, VETCD, BEASTCD, etc.)	a. Yes	b. No
24. World Wide Web and other Internet resources	a. Yes	b. No
25. Ask library staff	a. Yes	b. No
26. Ask classmates and/or instructors for tips	a. Yes	b. No
27. Browse books and/or journals on the shelf	a. Yes	b. No

28. Of the sources listed in 19–27, which *one* do you use *most* often?
    a. 19 b. 20 c. 21 d. 22 e. 23 f. 24 g. 25 h. 26 i. 27
29. Of the sources listed in 19–27, which one do you use *second* most often?
    a. 19 b. 20 c. 21 d. 22 e. 23 f. 24 g. 25 h. 26 i. 27

Below is a list of printed and computerized indexes. How frequently have you used these indexes as a veterinary student?

Printed indexes/abstracts	0 times	1–2 times	3–5 times	6 or more times
30. Index Veterinarius	a	b	c	d
31. Veterinary Bulletin	a	b	c	d
32. Index Medicus	a	b	c	d
33. Current Contents: Agriculture, Biology and Environmental Sciences	a	b	c	d
34. Current Contents: Life Sciences	a	b	c	d
35. Biological Abstracts (Parks Library)	a	b	c	d
Index databases on computer				
36. VETCD (Veterinary science)	a	b	c	d
37. BEASTCD (Animal science)	a	b	c	d
38. MEDLINE (Human and veterinary medicine)	a	b	c	d
39. Current Contents	a	b	c	d
40. AGRICOLA (Agriculture)	a	b	c	d
41. Biological and Agricultural Index	a	b	c	d
42. Any of the above or similar index databases accessed from a computer at home	a	b	c	d

43. Computer services, web sites, lists, and newsgroups are listed in questions 44–47. Are you aware of any of these?
a. Yes b. No

How frequently have you used these resources	0 times	1–2 times	3–5 times	6 or more times
44. NOAH, VIN	a	b	c	d
45. NetVet/Electronic Zoo	a	b	c	d
46. VETSTU-L, VETMED-1, VETPLUS-1	a	b	c	d
47. Newsgroups (e.g., alt.med.veterinary)	a	b	c	d

48. Which of the following was the most useful in leaning about the resources in questions 44–47?
a. Vet school curriculum b. Vet journal/books c. Library staff d. Other vet students
e. Other f. Do not use/does not apply

When you are employed, how important will the following resources be to your future education?

	Not Imp	Somewhat Imp	Imp	Quite Imp	Very Imp
49. Personal library, including journals	a	b	c	d	e
50. Veterinary or university library	a	b	c	d	e
51. Online services (NOAH, VIN)	a	b	c	d	e
52. Index databases (e.g., MEDLINE)	a	b	c	d	e
53. World Wide Web (e.g., NetVet, Electronic Zoo)	a	b	c	d	e
54. Electronic mail lists (e.g., VETMED-L, VETPLUS-L)	a	b	c	d	e
55. Newsgroups (e.g., alt.med.veterinary)	a	b	c	d	e
56. Colleagues	a	b	c	d	e
57. Conferences and meetings	a	b	c	d	e
58. Continuing education courses and workshops	a	b	c	d	e

THANK YOU FOR YOUR PARTICIPATION