PERSPECTIVES OF FORESTRY AND AGRICULTURE UNDERGRADUATES

Alix Hayden and Ruth Hayden

Abstract

The purpose of this study was to identify and compare the information sources that first-year and fourth-year undergraduate students in the Faculty of Agriculture and Forestry at the University of Alberta choose to satisfy their academic information needs. Data were collected by means of a questionnaire. The sample was comprised of 57 first-year students and 69 fourth-year students, representing 40% and 47% of the total enrollment of first and fourth year undergraduates respectively. Results suggest that the type of course requirement influences the choice of information source. Students tend to choose a formal source, such as a library, for term papers and seminars, and an informal source, such as a teaching assistant and friend, for lab and seminar assignments.

Introduction

Agriculture and Forestry have been, and continue to be, the most important primary industries in Canada, contributing major economic and social benefits to Canadian society as a whole. Research and development constitute the key to their continued progress.

Issue by issue examination of the *Quarterly Bulletin of the International Association of Agricultural Librarians and Documentalists* (IAALD) reveals that research as been conducted on the importance of effective dissemination and transfer of forestry and, more especially, agricultural information. For the most part, the research has focussed on information transfer through the printed medium and through online databases in developing countries. Few investigators have concentrated on agricultural and forestry information transfer in North America. In addition, researchers have not investigated the importance of informal communication networks in the agricultural and forestry fields, or in the education of students in these disciplines.

Wilson (1981) contends that past information seeking behavior studies have not addressed the central quesiton of "why the user decides to seek information, what purpose he believes it will serve, and to what use it is actually put when received" (p. 7). He suggests that research has focussed primarily on pragmatic issues, such as determining the effectiveness of existing information systems, and providing guidance on aspects of information systems design, development and operation. Most studies, therefore, have concentrated on the means by which individuals find information rather than upon the ends served by the information seeking behavior (Wilson, 1981). Furthermore, this same researcher contends that investigations which explore the perceived information needs of people is limited at best in the literature.

In 1966, Allen, as a result of his investigation of the flow of technical information among engineers, suggests that scientists were found to rely more heavilty upon written sources than oral sources of information, while for technologists the pattern was reversed. He concluded that formal sources and informal sources are important to both scientists and technologists, but to varying degrees. Other studies (Ford, 1986; Martin & Givens, 1986; Menzel, 1958; Paisley, 1966; Rosenbloom & Wolek,1970; Friedlander, 1973; Quaglieri, 1982) support this contention.

Few studies have focussed on the student as an information seeker. Rather research has concentrated on library use by undergraduate and graduate students in an academic environment. The works of Dunn (1984), and Whitlach (1983) are exceptions although only the former explored information sources other than in university libraries. Results from that study indicated students ranked teacher as the most important source in satisfying information needs.

Purpose

The purpose of this study, therefore, was to identify the information sources that first-year and fourth-year undergraduate students in the Faculty of Agriculture and Forestry at the University of Alberta chose in order to satisfy their academic information needs. Specifically, the study addressed the following questions:

1. What information sources do Agriculture and Forestry undergraduate students choose to satisfy their academic information requirements?
2. What relationship exists between type of information source chosen by the students and type of course requirement?

Procedure

The subjects for this study were first-year and fourth-year undergraduate students (n=141 and 146 respectively) registered in the Faculty of Agriculture and Forestry at the University of Alberta during the 1987-88 academic year. A questionnaire, based on the work of Dunn (1984), was focussed towards course requirements and information sources. Both structured and open-ended questions were included.

K. Alix Hayden is a master's graduate from Library and Information Studies at the University of Alberta, Canada. Ruth Hayden is an associate professor in the Faculty of Education, 535 Education South, University of Alberta, Edmonton, Alberta, Canada T6G 2G5.

Students were asked to identify the course requirements for which they sought information during the previous semester, selecting from a list of eight pre-identified possibilities: assignments, labs, term papers, exams, seminars, beyond class requirements, other, and none.

Students indicated by completing a Likert-type rating scale how important each information source was for each of the eight pre-identified course requirements. They were also asked to identify which three information sources were most important for them and the reasons for their choices.

Three methods were used to distribute the questionnaire: distribution in selected classes, distribution through the Students' Records Office of the Faculty of Agriculture and Forestry, and mail distribution.

Data were analysed by using a) descriptive statistics which included frequences and percentages for the variables of first-year and fourth-year students, course requirements, and information sources and b) one-way analysis of variance to examine the relationship between course requirements and information sources chosen for which an F-test was also conducted in order to determine which information sources had significant differences among their observed means of importance. As the sample sizes for each type of course requirement were not equal, the Scheff method was used to make pairwise comparisons of the significantly related groups of course requirements for each information source. Each course requirement was compared with the other course requirements for each of the information sources chosen by the respondents.

Findings and Discussion

Response rate to the questionnaire was 40% and 47% for first-year and fourth-year students respectively. Figure 1 provides a comparison of the course requirements for which both groups of students sought information.

Results suggest that requirements for first and fourth year courses differ. First-year courses relied most heavily upon assignments, while fourth-year courses demanded more attention to term papers. As the first-year curriculum depended generally on assignments, it was predictable that students at this level of their program spent the greatest amount of their time seeking information for those assignments. Similarly, since the fourth-year program depended most heavily on term papers, fourth-year students spent the largest amount of their time seeking information for these tasks which usually relie on printed published material. Such

Figure 1: Comparison of the Course Requirements for which Students Spent the Most Time Seeking Information.

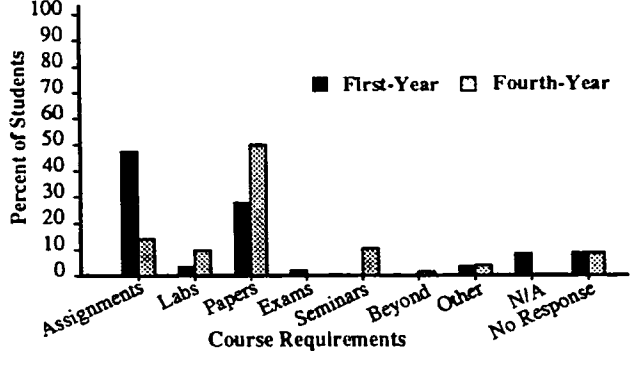

Table 1: Importance of Information Sources Chosen by First-Year and Fourth-Year Students Combined

Information Source	Degree of Importance: Very		Moderately		None		No Response		Total	
	Use									
	#	%	#	%	#	%	#	%	#	%
Public	13	4	29	8	299	85	9	3	350	100
Special	58	16	97	28	188	54	7	2	350	100
Department	86	25	92	26	165	47	7	2	350	100
University	219	63	81	23	50	14	0	0	350	100
Expert	40	11	82	24	220	63	8	2	350	100
Professor	77	22	139	40	131	37	3	1	350	100
TA	54	15	109	31	185	53	2	1	350	100
Family	18	5	44	13	278	79	10	3	350	100
Friend	50	14	126	36	172	49	2	1	350	100
Personal	99	28	129	37	113	32	9	3	350	100
Bookstore	11	3	30	9	288	82	21	6	350	100
Other	7	2	7	2	162	46	174	50	350	100

information searching is usually time-consuming.

Almost all students reported that they sought information for course requirements. This emphasizes that students normally utilize some kind of information source in order to successfully complete their programs of study. It is also interesting, however, to note that proportionately few students, 9% of those in first-year and 19% of those in fourth, sought information beyond course requirements. This result is in contrast to Dunn's (1984) study where all participants (registered in a liberal arts degree program) went beyond course requirements in their search for information. Student information seeking behaviours, in the present study, therefore, appear to be motivated primarliy by their programs demands rather than by other factors.

Students were also asked to indicate which information sources were important for each type of course requirement. Table 1 illustrates the degree of importance assigned by students to each information source. The data represent the total number of ratings for each information source regardless of type of course requirement for which information was sought. The responses 'not important' and 'did not use' were grouped together for analysis as it was thought that if a student did not use an information source, it was considered to be unimportant. Sixty-three percent of the respondents indicated that the university library was a very important source of information. An additional 23% suggested that it was moderately important. The public library, bookstore, family member, and expert in the field were either considered to be less important, or were not used by the respondents.

As shown in Table 2, it may be seen that the special library, department library, university library, expert in the field, teaching assistant, friend and classmate, and personal library had significant differences among their observed means of importance. In other words, these information sources were significantly related to the type of course requirement.

The results indicate that term papers differed signifcantly from labs and exams in importance for the special library as an information source. That is, students considered the special library to be a more pertinent source of information for term papers than for labs or exams. Term papers differed significantly from labs in importance for the department library. For the university library as a source, all courses

Table 2: Analysis of the Relationship Between Course Requirements and Information Sources Chosen by Students.

INFORMATION SOURCES	MEAN IMPORTANCE OF INFORMATION SOURCES FOR COURSE REQUIREMENTS												PROBABILITY		
	Assignments G1 N=106		Labs G2 N=71		Term Papers G3 N=85		Exams G4 N=38		Seminars G5 N=26		Beyond Class G6 N=18		F-Ratio	P	Scheffé Test Significantly Different Groups*
	$\bar{x}$	s.d.	$\bar{x}$	s.d.	$\bar{x}$	s.d.	$\bar{x}$	s.d.	$\bar{x}$	s.d.	$\bar{x}$	s.d.			
Public	1.20	.47	1.08	.33	1.16	.51	1.11	.39	1.04	.20	1.39	.70	2.01	.0765	none
Special	1.61	.72	1.34	.58	1.91	.84	1.31	.62	1.58	.81	1.67	.84	5.98	.0000	G3-G4, G3-G2
Department	1.72	.78	1.58	.77	1.94	.88	1.42	.72	1.77	.76	1.83	.92	2.88	.0145	G3-G4
University	2.59	.61	2.30	.78	2.59	.74	1.80	.81	2.53	.81	2.44	.70	8.41	.0000	G1-G4, G3-G4, G5-G4, G6-G4, G2-G4
Expert	1.48	.65	1.37	.64	1.67	.81	1.24	.54	1.23	.51	1.33	.59	3.56	.0038	G3-G4
Professor	1.89	.69	1.77	.81	1.78	.73	1.80	.87	1.69	.68	1.67	.84	0.53	.7539	none
TA	1.50	.67	2.01	.78	1.44	.66	1.53	.76	1.50	.71	1.28	.57	7.23	.0000	G2-G6, G2-G3, G2-G1, G2-G5, G2-G4
Family	1.25	.59	1.14	.42	1.18	.44	1.13	.47	1.04	.20	1.39	.70	1.68	.1383	none
Friend	1.76	.68	1.85	.75	1.48	.65	1.73	.83	1.38	.64	1.56	.70	3.48	.0044	G2-G3
Personal	2.08	.76	1.79	.77	1.84	.80	2.03	.94	1.46	.65	2.06	.64	3.57	.0037	G1-G5
Bookstore	1.11	.35	1.03	.17	1.12	.42	1.21	.58	1.00	.00	1.17	.38	1.86	.1015	none

*P significant at .10 Mean Importance Scale: 1.00 not important 2.00 moderately important 3.00 very important

requirements differed significantly in importance from exams. Students did not choose the university library as a source of information for exams. An expert in the field was likely to be chosen for term papers but not for labs. A teaching assistant was significantly more important to students for labs than for other course requirements. A friend was a more important source of information to students for labs than for term papers, while their personal library was more important for assignments than for seminars.

Table 2 also presents the mean importance of each information source for each course requirment. The university library was the most important source of information for all types of course requirements. An important source of information for assignments, exams, and beyond course requirements was students' personal libraries while teaching assistants were considered more central as information sources for labs. Interestingly, the public library and bookstore were not important sources of information for any type of course requirement.

The results also suggest that students were not concerned whether an information source was formal or informal. Their choice of information source was determined by the type of requirement for which information was needed.

Conclusion

This study suggests that students seek information based on course requirement needs and that these needs are satisfied not only in accessing information through traditional sources such as the university library and departmental library systems, but also through other information sources. As future scientists, Agriculture and Forestry students may be brought to an awareness through different course assignments at all points of their programs, that a variety of sources are available to satisfy their information needs. The importance of informal information sources, such as teaching assistants, friends or classmates is not to be overlooked as professors design and prepare course assignments.

References

Allen, T. J. (1966). *Managing the Flow of Scientific and Technological Information.* Cambridge, Mass: Massachusetts Institute of Technology Press.

Dunn, K. (1984). Psychological Needs and Source Linkages in Undergraduates Information Seeking Behaviour: A Factor Analytic and Multiple Correlation Study. Unpublished Doctoral Dissertation, University of Southern California, Los Angeles, California.

Ford, N. (1986). Psychological determinants of information needs: a small-scale study of higher education students. *Journal of Librarianship*, 6, 47-62.

Frielander, J. (1973). Clinician Search for Information. *Journal of the American Society for Information Science*, 24(1), 65-69.

Martin, J., & Givens, M. K. (1986). Library services for undergraduates on a health science campus. *Tennessee Librarian*, 38, 10-13.

Menzel, H. (1958). *The Flow of Information Among Scientists, Problems, Opportunities and Research Questions.* New York: Columbia University, Bureau of Appplied Social Research.

Paisley, W. J. (1966). *Information Source Preference as a Function of Physical and Psychological Distance From the Information Object.* ERIC Document 026-101.

Quaglieri, P. L. (1982). A Note on Variations in Recruiting Information Obtained Through Different Sources. *Journal of Occupational Psychology*, 55(1), 53-55.

Rosenbloom, R., & Wolek, F. (1970). *Technology and Information Transfer: A Survey of Practice in Industrial Organizations.* Boston: Harvard University, Graduate School of Business Administration.

Whitlatch, J. (1983). Library Use Patterns Among Full and Part-Time Faculty and Students. *College and Research Libraries*, 44(2), 141-152.

Wilson, T. D. (1981). On User Studies and Information Needs. *Journal of Documentation*, 37(1), 3-15.