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ABSTRACT

A survey of 317 faculty members at three institutions of higher education in western Pennsylvania was conducted to determine how online reference services and library automation affect the attitude of faculty toward several variables: (1) centralization or decentralization of online reference services; (2) willingness to learn to use and pay for the services; and (3) attitude toward faculty status for librarians. The responses received from 202 faculty members (a 64% return) were analyzed using the Statistical Packages for the Social Sciences (SPSS-X). It was found that faculty favor decentralization of online search services and expect their institutions to provide the hardware, access, and operating expenses. However, a large percentage of faculty also favor centralized online services performed by librarians and realize the importance of having the library and librarians perform these services first or as the core service. Faculty favor faculty status and rank for academic librarians and feel that online services enhance that status. It is concluded that librarians can expect the continued use of library online services whether or not the services are decentralized. Notes are provided, and the survey questionnaire, cover letter, and statistical results are presented in 2 tables and 11 appendices. (KM)

FACULTY SURVEY ABOUT ONLINE SERVICES

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INTRODUCTION:

The democratization of information achieved by library automation and information retrieval technologies has had a profound impact on libraries, librarians, and patrons of libraries. Many libraries have already replaced card catalogs with online catalogs. Even more libraries offer online bibligraphic database services such as DIALOG and BRS. Document delivery services offered by these database service companies enable patrons to receive periodical articles or documents very quickly and inexpensively. Fiber optic technology is allowing offices throughout a campus such as the University of Pittsburgh to interface electronically with a library's online catalog.

There have been such astounding reductions in the size and cost of computers that personal computers are being purchased not only by faculty and students but also by institutions of higher education for offices and dormitories. If a modem and the telecommunications charges are provided also, online database and reference services may be accessed by faculty and students, as well as librarians. Although librarians have been almost exclusive users of these services in the past, the availability and less-expensive, non-prime time searching rates of the services have contributed to the increasing popularity of end-user searching.

Editors of a recent directory estimate that there are now as many as 45,000 online professionals.[1] Many of these professionals are librarians turned entrepreneurs. The technologies, therefore, also permit easy decentralization of online database search and document delivery services. Some colleges and universities do provide free online searching not only to faculty but also to students. Other institutions have budgetary or service limitations because online search services do require separate line items in the budgets.

Many libraries have had to cut periodical subscriptions or other expenses in order to provide online search services. This has had an impact on the faculty and students of these institutions. Since people often prefer ready access to periodicals, the librarians' justification in terms of document delivery and interlibrary loan services has not always met with favor.

The authors have surveyed their faculties to determine faculty attitude toward centralization, decentralization, willingness to learn to use and pay for the services, and attitude toward faculty status for librarians. The authors speculated that library automation and online database service may endanger faculty status for librarians. Does attitude vary according to the missions of the institution? Will faculty learn how to use and pay for the services if they are centralized on campus in the library? Are any of these variables related to the rank of the faculty member or to whether that person owns a personal computer?

DESCRIPTION OF SURVEY DATA

The faculty members at three institutions of higher education in western Pennsylvania were surveyed. Survey forms (See Appendix 1) were distributed to 117 full-time members of the Robert Morris College (RMC). The main campus is located just west of Pittsburgh, near the Greater Pittsburgh International Airport and a branch campus is in, downtown Pittsburgh. RMC is a private college that awards Master's and Bachelor's of Science degrees in Business Administration. More than 4,200 students major in areas such as accounting, management, marketing, economics, finance and business teacher education. Many of the faculty are or were in business. The library has participated in OCLC since 1971 and DIALOG since 1981.

Edinboro and Slippery Rock Universities are both state-owned, former land-grant colleges that prepared students for teaching. Slippery Rock is located north of Robert Morris College by forty

miles and south of Edinboro which is twenty miles south of Erie, Pennsylvania. Both institutions offer BA, BS, MA and MS degrees in the Arts, Sciences, and Social Sciences. Both institutions have been a part of the OCLC system since the early 1970's and have offered DIALOG for several years. Both have in-house circulation systems, orginally developed in the early 1970's. Students number about 6,000 and faculty number about 350 at each university.

The librarians at all three institutions have had faculty status and rank since the early 1970's. They have been involved in nearly all bargaining unit committees, including promotions, negotiations, tenure, and curriculum.

METHODOLOGY

A background information sheet and survey form were mailed in 1985 to each faculty member selected for the surveys at the three institutions. The forms were mailed to 100 randomly selected faculty at both Slippery Rock and Edinboro Universities (200 total). All of the full-time Robert Morris College faculty (117 faculty from both campuses) received the instruments. There were a possible 317 responses. A double envelope technique was used to keep the responses confidential. 202 professors responded.

The background information sheet conservatively described current and future library automation and information technologies. This strategy was advisable in light of the modest level of library automation and online database search services available at the three institutions. (See Appendix 2.)

Several hypotheses were advanced to determine the relationships between the questions or variables. They are as follows:

H1: There is no positive correlation in faculty attitude toward faculty status for librarians as a result of the faculty members' sex, rank, times using the library, expected online use, and owning a computer.

H2: There is no positive correlation between the questions on centralization or decentralization and the other questions or variables.

H3: There is no significant difference in results among dissimilar institutions of higher education.

These hypotheses are stated in terms of the null hypotheses and do not reflect the authors' expectations. Those who favored centralization, for example, were expected to be more frequent users of the library and less willing to learn how to use and pay for the online services.

A preliminary study or survey was completed first at Slippery Rock University and the results are reported elsewhere.[2] Many of the correlations that were found at SRU were not found at Robert Morris and Edinboro University. These "discrepancies" will be discussed later.

ANALYSIS OF THE DATA

The analysis of the data, using SPSSX, clearly establishes that faculty favor decentralization of online search services.[3] But this is not to say that faculty are against centralization of online reference and literature searching. Faculty definitely want both decentralized and centralized online services. 48 percent, or 81 faculty, favored centralization (question 1). (See Table 1 for a summary of the responses to questions 1, 2, 3, 4, and 7.)

Questions 1 and 2 were correlated significantly as expected.

(Chi-square = 216.80, α .05 level Cramer's V = 0.59814). 52 answered 'NO' to question 1 on centralization and 'YES' for question 2 on decentralization. Likewise, 50 answered 'NO' for decentralization and 'YES' for centralization. Additional evidence that faculty favor decentralization is that fewer faculty (22.8 percent) expressed uncertainly when answering question 2 on decentralization. More faculty (31.7 percent) were uncertain on question 1 for centralization.

Faculty who favor decentralization are willing also to learn how to use and to pay for the services and training in order to have more direct and convenient access from office or home computers. Questions 2 and 3 show a statistically significant relationship (Chi square 224.89, α 0.05 level, Cramer's V = 0.60919). Many faculty expressed difficulty in answering question 3 because they interpreted the question as two distinct questions. If a respondent was willing to learn how to use but not pay for the service, a 'NO' was recorded. The authors wanted to know how many faculty were willing not only to learn how to use database searching but also to pay for the searches at their own expenses. The $30.00 cost was specified to determine the truly serious faculty.

Question 1 on centralization is significantly correlated with both questions 3 and 4. For questions 1 and 3, Chi-square is 120.03 and Cramer's V is .44506, and for questions 1 and 4, Chi-square is 142.91 and Cramer's V is .48562. These were significant at the .05 level with 9 degrees of freedom. Faculty who favor centralization on online services are more willing to use trained librarians than to learn how to do online searching at their own expense. Out of the 102 respondents (50 percent) who are not willing to learn how to use nor to pay for online searching, 53 favored centralization, only 16 faculty registered 'NO' to the centralization question, and 33 were uncertain. The questions are significantly correlated despite the $30.00 average charge listed in question 3. If the suggested charge had been far less, the authors feel that the correlation would have been even stronger, as measured by Cramer's V

statistics.

An expected finding is that the faculty who favored decentralization in question 2 were also willing to use trained librarians for online search services. 42 faculty answered 'YES' to both questions. Faculty who favor decentralization are less likely to use trained librarians. They may be likely, therefore, to learn how to do online searching and to pay for the services at their own expense. However, 51 faculty who disfavored decentralization expressed a willingness to use trained online search librarians.

Similarly, there is a statistically significant correlation between questions 2 and 5. (Chi-square = 23.29, α .05 level, Cramer's V = .19605). Faculty who favor decentralization of online search services are more likely to use them frequently. This is consistent with the finding that faculty favoring decentralization are willing to learn how to use and to pay for the services and training. 91 faculty favored decentralization and expected to use online search services at least once. A total of 58 (28.7 percent) are opposed to decentralization of online search services and 53 of them expected to use the services at least once.

It seems that faculty want both centralization and decentralization of online services. This explains why faculty who favor decentralization also want trained reference librarians available for assistance. Faculty do value the training and expertise of librarians. Perhaps online searching is viewed by faculty as an extension of reference service just as the online catalog is extended by use of remote office or dormitory terminals. Faculty may expect the same computer terminals to be authorized for use of online reference and bibliographic retrieval services.

The researchers suspected that faculty who own a computer would favor decentralization because they should see the value of remote access to online database. Informal conversations

with faculty reveal that very few faculty computer owners use online services, because of the expense of the computer, the ease of obtaining desired information from other sources which are free, the time needed to learn how to use the services, etc. Many faculty at the three institutions have found the libraries' DIALOG services to be entirely adequate, generally free, and easy to obtain. The questions on owning a computer and attitude toward decentralization (question 2) and centralization (question 1) were not statistically correlated.

The study shows that non-computer owners (131 or 65 percent) are more likely to use library online search services than computer owners. (70 or 35 percent). The results (Chi square 12.87, α 0.05 level, Cramer's V = .17849) indicate that non-owners must rely on libraries or other online professionals to do searching. If library online searches are free or very inexpensive, why would faculty want to buy a computer or pay connect and search charges? At this time, therefore, whether or not faculty members own a computer has little to do with attitude toward any library service. The relationship between these two questions was weak because faculty computer owners, our informal conversations reveal, have purchased computers primarily for word processing, spread-sheet, or game uses, rather than online searching capability.

The number of times faculty use the library now (question 8) and expected use of online search services (question 5) were significantly correlated. See Table 2. The study supports the expectation that faculty who make heavy use of the library would also continue to do so in the future. Online reference may be viewed as an extension of traditional reference service. No attempt is made, however, to determine what use of the library is made by the faculty respondents.

Rank of the respondents also correlated significantly to question 8 about use of the library now (Chi square 24.52, α 0.05, Cramer's V = .20116). As the rank of respondents

increased to full professor, so did the number of times they made use of the library. No questions were asked about what library resources or services were used, however. Rank was not correlated significantly with any other variable for the combined data. The relationship between rank and question 8 is a weak one because the correlation was significant only for the SRU and the combined data, not for RMC and EU data. For this reason, the data is not presented in table form.

Further evidence that faculty status for librarians and the described technological changes are related is that questions 6 and 7 are strongly correlated (Chi square 36.27, α 0.05, Cramer's V = .2446). The highest percentage and number of respondents, 59 or 29 percent, favored faculty status for librarians now and believed that the technological changes described in the information sheet would enhance faculty status for librarians. Another large percentage (18.8 percent) are of the opinion that the technologies would not change faculty status of librarians. This response, of course, is also positive because the librarians at all three institutions have faculty status and rank. Nearly half (48 percent) favor faculty status and rank for librarians and believe that the technologies will enhance or not change that situation. For SRU faculty, the percentage is even higher (74.3 percent). Librarians should take solace in the finding that few faculty believe the described technological advances adversely affect faculty status for librarians.

Although the question about how many faculty plan to buy a computer over the next few years is significantly correlated with both questions 3 and 4, the results are ambiguous and will not be fully reported. 74 faculty expect to buy a computer and 58 do not over the next few years. A large number (70 faculty or 34.7 percent) did not respond to the question. There is an indication that faculty who plan to buy a computer will learn how to use online search services and pay for searches at their own expense. 27 faculty answered 'YES' to both questions. Faculty

who do not expect to buy a computer (37) will not learn how to use the services and pay for searchers. This accounts for the significant correlation between the two questions. Only a minority of the faculty (13.5 percent) expect to buy a computer in the next few years and also learn how to use the services and pay for them at their own expense.

Appendices 3 - 11 are included for reader's reference to statistical data relating to the questions.

CONCLUSION

The authors conclude that faculty at the three institutions greatly value both online services provided by libraries and the librarians who provide the services. Faculty favor centralized online services performed by librarians. For these reasons, the faculty surveyed favored faculty status and rank for academic librarians and feel that online services enhance, not endanger, that status.

But the respondents also want online services to be decentralized. They expect their institutions to provide the hardware, access, and operating expenses at no cost to them. In any case, they realize the importance of having the library and librarians to provide centralized online services first, or as the core service. Librarians can expect the continued use of library online services whether or not the services are decentralized. Since the decentralization of online services is strongly favored, faculty can be expected to push the institutions in this direction but not worry that by doing so decentralization will undermine their faculty status.

NOTES

1. Marquis Who's Who Directory of Online Professionals. Chicago: Marquis, 1984.

2. Richard J. Wood, "The impact of online information retrieval and library automation on the attitude of faculty in an academic library." Educational Resources Information Center, 1986, ED 266 780.

3. SPSSX User's Guide. New York: Mcgraw Hill, 1983.
Chi-square tests whether a significant difference exists between the observed number of cases in each category. It is used for data from questions that fall into categories. Cramer's V statistics is used for larger than 2 x 2 tables. It measures the strength of association between variables 0.0 being the lowest value and 1.0 being the highest or strongest value.

TABLE 1

SUMMARY OF RESPONSES TO QUESTIONS 1, 2, 3, 4, AND 7

	RESPONSES			
	yes	no	uncertain	no response
questions:				
1	81 40.1%	55 27.2%	64 31.7%	2 1.0%
2	97 48.0%	58 28.7%	46 22.8%	1 .5%
3	54 26.7%	102 50.5%	45 22.3%	1 .5%
4	125 61.9%	47 23.3%	29 14.4%	1 .5%
7	118 58.4%	36 17.8%	46 22.8%	2 1.0%

TOTAL RESPONDENTS = 202

TABLE 2

Cross-tabulation of Relevance of References
by Relationship between present use of the library
(Question 8) and expected use of online
searching (Question 5)

	QUESTION 5 0	1 or 2x	3 or 4x	5 plus x	ROW TOTAL
QUESTION 8 0	5		3	1	9
1 or 2x	2	19	1	1	23
3 to 6x	4	41	19	6	70
7 plus x	9	52	22	17	98
COLUMN	20	112	45	25	202
TOTAL	9.9%	55.4%	22.3%	12.4%	100.0%

Chi-square = 37
D.F. = 9
$p < .05$
Contingency coefficient = 0.39349

APPENDIX 1

QUESTIONNAIRE

1. Do you believe that computer literature searching should be done by trained librarians and budgeted by the University for faculty, only as part of a centralized library service?
   ( ) YES ( ) NO ( ) UNCERTAIN

2. Do you believe it would be better to decentralize computer search services in a way that faculty would have direct access and a budget for search services?
   ( ) YES ( ) NO ( ) UNCERTAIN

3. Are you willing to learn how to use and pay for computer search services and training workshops, say at an average cost of $30.00 per search, in order to have more direct and convenient access from a home or office computer systems?
   ( ) YES ( ) NO ( ) UNCERTAIN

4. Are you more likely to ask trained reference librarians to do computer literature searching than to learn how to do so yourself at your own expense?
   ( ) YES ( ) NO ( ) UNCERTAIN

5. How often would you be likely to use computer search services for course work and research during a semester?
   ( ) NOT AT ALL ( ) 1or2 TIMES ( ) 3or4 TIMES ( ) 5 OR MORE

6. Do you believe that librarians' faculty status and rank will be enhanced, endangered, or not changed by the technological advances described?
   ( ) ENHANCED ( ) ENDANGERED ( ) NOT CHANGED ( ) UNCERTAIN

7. Do you believe that librarians should have faculty status and rank?
   ( ) YES ( ) NO ( ) UNCERTAIN

8. The number of times you used Baron-Forness Library this semester.
   ( ) NOT AT ALL ( ) 1or2 TIMES ( ) 3or6 TIMES ( ) MORE THAN 6

9. Sex: ( ) male ( ) female

10. Rank: ( ) Instructor ( ) Associate professor ( ) Assistant professor ( ) Full professor

11. Do you own a computer at home? ( ) YES ( ) NO

12. If not, do you contemplate buying one over the next few years?
    ( ) YES ( ) NO

PLEASE ADD ANY COMMENTS ON THE BACK OF THIS SHEET.

THANK YOU FOR YOUR HELP. PLEASE SEAL THIS SHEET IN THE ADDRESSED ENVELOPE AND RETURN TO ME VIA CAMPUS MAIL.

APPENDIX 2

To:

From: Richard Wood, Ph. D.
Bailey Library

Re: Participation in a research study

Date: April 15, 1985

Your name was selected at random to participate in a research study about how faculty believe technological advances will affect libraries, librarians, and themselves in the 21st century. Your help will be appreciated and is essential to the success of my research. Please read the background information below and answer the questions on the next page.

First, the trend toward replacing card catalogs with online, automated library systems will continue and result in faster, more effective searching of library holdings. Individual library systems, in many cases, will be interconnected, resulting in the capability to determine library holdings in the region, nation, and other countries. Our library has been part of a system such as this for cataloging and interlibrary loan since the early 1970's. Besides traditional author/title/subject searching, however, future systems will allow users to limit results by language, copyright date, and other subtopics. Faculty and students will be able to access library systems from home computers and terminals located throughout campus.

Second, computer retrieval systems, such as Lockheed who has offered the DIALOG searching system for many years, will continue to expand the number of periodical and other data bases indexed. Companies should enhance their online help features for self-learning and offer more local training workshops so that faculty, researchers, and others will be able to do literature searches from their homes and offices more cost effectively. Photocopies or micrographic reproductions of articles that are needed by people using the systems will continue to be offered, but at lower costs as the demand for the service increases. Advances in telefacsimile reproduction and transmission of material will further limit the need for libraries to subscribe to periodicals used infrequently. A similar technology having the same effect is electronic publishing whereby publishers receive, review, edit, and publish articles or studies using computer technology. This technology does away with printed copies of articles from inception by the authors to the printing-off of copies on demand by publishers.

Finally, reference sources such as encyclopedias, dictionaries, almanacs, and bibliographies will be offered by retrieval companies for online, computer searching by anyone with the proper computer hardware. With such hardware, in fact, anyone with the financial resources to pay for the services will be able to do literature searching without visiting the library. The degree, level, or cost of any of these services, however, cannot be predicted accurately. Nor can the effect on libraries, librarians, and users of information be predicted. But you can help by answering the questions on the next page.

APPENDIX 3

Cross-tabulation or Relevance of References
by Centralized (Question 1) or decentralized (Question 2)?

	QUESTION 2 YES	NO	UNCERTAIN	NO RESPONSE	ROW TOTAL
QUESTION 1					
YES	16	50	15		81
					40.1%
NO	52	1	2		55
					27.2%
UNCERTAIN	29	6	29		64
					31.7%
NO RESPONSE		1		1	2
					1.0%
COLUMN	97	58	46	1	202
TOTAL	48.0%	28.7%	22.8%	.5%	100.0%

Chi-square = 216.8
D.F. = 9
p < .05
Contingency coefficient = 0.71950

APPENDIX 4

Cross-tabulation of Relevance of References by Attitude toward Centraliztion (Question 1) and willingness to learn aand pay for online searching (Question 3).

	QUESTION 3 YES	NO	UNCERTAIN	NO RESPONSE	ROW TOTAL
QUESTION 1					
YES	13	53	15		81
					40.1%
NO	22	16	17		55
					27.2%
UNCERTAIN	18	33	13		64
					31.7%
NO RESPONSE	1			1	2
					1.0%
COLUMN	54	102	45	1	202
TOTAL	26.7%	50.5%	22.3%	.5%	100.0%

Chi-square = 102.03
D.F. = 9
p < .05
Contingency coefficient = 0.64369

APPENDIX 5

Cross-tabulation of Relevance of References by Attitude toward Centraliztion (Question 1) and willingness to use librarians rather than learn and pay (Question 4).

	QUESTION 4 YES	NO	UNCERTAIN	NO RESPONSE	ROW TOTAL
QUESTION 1					
YES	69	4	8		81
					40.1%
NO	20	26	9		55
					27.2%
UNCERTAIN	36	16	12		64
					31.7%
NO RESPONSE		1		1	2
					1.0%
COLUMN	125	47	29	1	202
TOTAL	61.9%	23.3%	14.4%	.5%	100.0%

Chi-square = 142.91
D.F. = 9
p < .05
Contingency coefficient = 0.22008

APPENDIX 6

Cross-tabulation of Relevance of References by Decentralization (Question 2) & Willingness to Learn and Pay for Searching (Question 3)

	QUESTION 3 YES	NO	UNCERTAIN	NO RESPONSE	ROW TOTAL
QUESTION 2					
YES	37	35	25		97
					48.0%
NO	6	43	9		58
					28.7%
UNCERTAIN	11	24	11		46
					22.8%
NO RESPONSE				1	1
					.5%
COLUMN	54	102	45	1	202
TOTAL	26.7%	50.5%	22.3%	.5%	100.0%

Chi-square = 232.75
D.F. = 9
p < .05
Contingency coefficient = 0.72582

APPENDIX 7

Cross-tabulation of Relevance of References by Attitude toward decentralization and expected use of online search services

	QUESTION 5				
	0	1 or 2	3 or 4	5 or More	ROW TOTAL
QUESTION 2					
YES	6	52	20	19	97 48.0%
NO	5	36	12	5	58 28.7%
UNCERTAIN	8	24	13	1	46 22.8%
NO RESPONSE	1				1 .5%
COLUMN	20	112	45	25	202
TOTAL	9.9%	55.4%	22.3%	12.4%	100.0%

Chi-square = 23.29
D.F. = 9
$p < .05$
Contingency coefficient = 0.32154

APPENDIX 8

Cross-tabulation of Relevance of References
by Expected use of search services by faculty owning
a computer

	QUESTION 5				
	0	1 or 2	3 or 4	5 or More	ROW TOTAL
OWN COMPUTER ?					
YES	3	34	18	10	70
					34.7%
NO	16	73	27	15	131
					64.9%
					.5%
NO RESPONSE	1				2
					1.0%
COLUMN	20	112	45	25	202
TOTAL	9.9%	55.4%	22.3%	12.4%	100.0%

Chi-square = 12.87
D.F. = 9
$p < .05$
Contingency coefficient = 0.22475

APPENDIX 9

Cross-tabulation of Relevance of References
by Relationship between present use of the library
(Question 8) and expected use of online
searching (Question 5)

	QUESTION 5				
	0	1 or 2x	3 or 4x	5 plus x	ROW TOTAL
QUESTION 8					
0	5		3	1	9
1 or 2x	2	19	1	1	23
3 to 6x	4	41	19	6	70
7 plus x	9	52	22	17	98
COLUMN	20	112	45	25	202
TOTAL	9.9%	55.4%	22.3%	12.4%	100.0%

Chi-square = 37
D.F. = 9
$p < .05$
Contingency coefficient = 0.39349

APPENDIX 10

Cross-tabulation of Relevance of References
by Relationship between rank and use of the library

	TIMES USED LIBRARY 0	1 or 2x	3 or 6x	7 plus x	ROW TOTAL
RANK					
INSTRUCTOR	1		3	10	14 6.9%
ASSISTANT	7	5	20	23	55 27.2%
ASSOCIATE		14	23	32	69 34.2%
PROFESSOR	1	4	24	35	64 31.7%
COLUMN	9	23	70	100	202
TOTAL	4.5%	11.4%	34.7%	49.5%	100.0%

Chi-square = 24.52
D.F. =
p <
Contingency coefficient = 0.32902

APPENDIX 11

Cross-tabulation of Relevance of References by Attitude toward faculty status and change in librarians' status as a result of technological changes

	QUESTION 6 YES	NO	UNCERTAIN	NO RESPONSE	ROW TOTAL
QUESTION 7					
YES	59	8	38	13	118 58.4%
NO	7	6	15	8	36 17.8%
UNCERTAIN	10	3	15	18	46 22.8%
NO RESPONSE				2	2 1.0%
COLUMN	76	17	68	41	202
TOTAL	37.6%	8.4%	33.7%	20.3%	100.0%

Chi-square = 36.27
D.F. = 9
p < .05
Contingency coefficient = 0.39018