Sources of Professional Knowledge for Academic Librarians

Ronald R. Powell

More than three hundred ARL librarians were asked where they had acquired their professional knowledge and where they thought it would be best to acquire it. Respondents indicated that library school and on-the-job experience provided most of their professional education and training but suggested that they would prefer to acquire more of their knowledge from continuing education and staff development programs than is presently the case. Other sources of information investigated include nonlibrary science degree programs and internships. Earlier research on the amount and importance of university librarians' professional knowledge is summarized.

The demands being made of academic librarians are changing at a rapid rate. Librarians also need to be proficient in an ever-increasing number of areas. What is not known with any certainty is exactly what skills are most important for librarians and where those skills are optimally acquired.

The knowledge, skills, and/or proficiencies needed by academic librarians have received considerable attention in the literature during the past several years. Articles and other reports have been authored by, among others, Millicent Abell,[1] Toni Carbo Bearman,[2] Patricia Battin,[3] Sheila Creth and Faith Harders,[4] the Association of Research Libraries (ARL),[5] and Jose-Marie Griffiths and Donald King.[6] Yet there is still a need for more specific data on the proficiencies important to university librarians.

Ronald Powell and Sheila Creth conducted a study in 1985 designed to answer the following questions:

1. To what extent do librarians consider themselves knowledgeable in relevant areas?
2. To what extent are these areas of knowledge considered important for effective job performance?
3. Where do librarians tend to acquire their relevant knowledge?
4. Where do librarians think such knowledge is best acquired?

In order to gather necessary data to answer these questions, the researchers mailed questionnaires to a random sample of 539 ARL librarians with nine or fewer years of professional experience. Three hundred and forty-nine usable questionnaires were returned, representing about 65 percent of the sample. The questionnaires collected information about the librarians' current positions, job and educational experiences, sex, age, and knowledge bases. (*Knowledge base* denotes the proficiencies, skills, and information possessed by the participating librarians.)

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Initial analysis of the data focused on the professional knowledge of the respondents and the value they attached to specific knowledge bases. The results of that analysis were reported in the January 1986 issue of *College & Research Libraries*.[7] A brief summary of those findings follows.

IMPORTANCE AND AMOUNT OF KNOWLEDGE

For each of fifty-six knowledge bases, participants indicated how much of the knowledge they possessed and how important it was for their own job performance. The fifty-six knowledge bases are presented in table 1 (table 2 of the 1986 article) in order of their perceived importance (see the first two columns). The third and fourth columns of table 1 indicate how much knowledge was held by the respondents and the corresponding rankings. The importance of each knowledge base was measured on a five-point scale: one designates essential; two, very important; three, important; four, of little importance; and five, of no importance. The amount of each knowledge base possessed by respondents was measured on the following four-point scale: one, extensive; two, moderate; three, slight; and four, none.

In brief, an examination of the data in table 1 reveals that, generally, traditional knowledge areas tend to be ranked relatively high in importance by respondents. In fact, most of the top twenty areas fell into one of two categories: traditional core and management.[8] Analysis of the data also indicated that several of the knowledge bases, especially less traditional ones, that were considered quite important did not receive correspondingly high rankings on the amount of the knowledge that the respondents reported they actually possessed.

The results of the analysis supported the authors' contention that not every important skill is being acquired in library school. But given that it is not possible for a student to learn in one or two years all that he or she will need throughout an entire professional career, we are left with the question of where the important skills can be most conveniently and effectively acquired. Consequently, data relating to where the respondents had acquired their professional knowledge and where they thought it would best be acquired were analyzed.

KNOWLEDGE BASES: WHERE ACQUIRED?

The following analysis, a summary of the data regarding where librarians acquire their knowledge and where they think it should be acquired, is limited to the knowledge bases ranked among the twenty most important and the top twenty in terms of amount held.

The majority of knowledge bases were acquired in library school and on the job (see table 2). (The number of "yes" responses can be greater than the number of respondents as many skills were acquired from more than one source.) Almost 29 percent of all "yes" responses represent library school and about 35 percent on-the-job experiences. Continuing education and staff development combined represented over 16 percent of the "yes" responses. Other degree programs, internships, and "other" accounted for the remaining 20 percent.

The skills reported as being most frequently acquired in library school were familiarity with and use of: bibliographic tools, general reference sources, reference interview, cataloging codes/rules, subject cataloging, subject classification, and the structure of subject literature. All of these bases represent traditional core areas of formal library education programs.

On the other hand, the proficiencies most frequently obtained on the job involved: oral communication skills, knowledge of specialized reference sources, decision-making ability, search strategy, planning, online searching, selection of materials, personnel management, library automation, structure of subject literature (tie), bibliographic instruction, and staff training and development. These skills are generally less traditional in nature than those more frequently acquired in library school. The two remaining proficiencies, writing skills and knowledge of a subject field, were most frequently gained in other degree programs.

TABLE 1

RANKING AND MEAN SCORES FOR "IMPORTANCE" OF KNOWLEDGE BASE AND "AMOUNT" OF KNOWLEDGE

Knowledge Base	Importance of Knowledge Mean Score (1–5)	Rank	Amount of Knowledge Mean Score (1–5)	Rank
Bibliographic tools	1.67	1.5	1.39	1
Oral communication skills	1.67	1.5	1.76	8
Writing skills	1.71	3	1.53	2
Specialized reference sources	1.95	4	1.63	4
Decision making	2.05	5	2.03	18
Search strategy	2.07	6	1.58	3
Subject field	2.10	7	1.64	5.5
General reference sources	2.17	8	1.64	5.5
Planning	2.20	9	2.12	20
Online searching	2.38	10	1.86	9
Reference interview	2.39	11	1.70	7
Selection of materials	2.41	12.5	1.87	10
Catalog codes/rules	2.41	12.5	1.95	13.5
Personnel management	2.42	14	2.23	27
Subject cataloging	2.43	15.5	2.01	17
Library automation	2.43	15.5	2.13	21
Subject classification	2.48	17	1.94	12
Structure of subject literature	2.53	18	1.99	16
Bibliographic/library instruction	2.55	19	1.98	15
Staff training and development	2.56	20	2.36	32
Filing	2.59	21	1.92	11
Research methods	2.68	22	1.95	13.5
Collection evaluation	2.72	23	2.22	25
Nonbook formats	2.78	24	2.22	25
Acquisitions procedures	2.82	25	2.17	22
Teaching methods	2.84	26	2.25	28
Higher education	2.89	27	2.08	19
Computer software	3.01	28	2.53	38
Budgeting	3.02	29	2.57	40
Management theory	3.04	30	2.45	36
Foreign language	3.05	31	2.21	23
Collection weeding	3.06	32	2.37	33
Resource sharing	3.08	34	2.33	29
Program evaluation techniques	3.08	34	2.79	49
Networks	3.08	34	2.35	30.5
Space and work environment	3.09	36	2.52	37
Publishing industry	3.12	37	2.42	34
Cataloging of special materials	3.18	38	2.62	45
Computer hardware	3.20	39	2.62	45
Indexing	3.23	40	2.35	30.5
Serials control	3.25	41	2.63	47
Preservation/conservation	3.28	42	2.62	45
Copyright	3.29	43	2.44	35
Collection storage	3.38	44	2.59	42
Approval plans	3.39	45	2.56	39
Circulation services	3.42	46	2.22	25
System analysis	3.48	47	2.86	53
Circulation systems	3.62	48	2.60	43
Cooperative acquisitions	3.68	49	2.82	51
Security systems	3.74	50	2.82	51
Commercial or external cataloging services	3.76	51	2.82	51
Computer programming	3.81	52	2.99	54
History of books and printing	3.87	53	2.58	41
Inferential statistics	3.94	54	3.29	55
History of libraries	4.16	55	2.67	48
Collective bargaining	4.28	56	3.35	56

TABLE 2

TWENTY MOST IMPORTANT KNOWLEDGE BASES
AND YES RESPONSES FOR WHERE ACQUIRED

Knowledge Base	Knowledge Source						
	Library School	Other Degree Programs	Internship	Continuing Education	Staff Development	On-the-Job	Other
Bibliographic tools	299	37	57	79	52	289	1 55
Percent	34.5	4.3	6.6	9.1	6.0	33.3	6.3
Oral communication skills	80	168	21	65	52	186	141
Percent	11.2	23.6	2.9	9.1	7.3	26.1	19.8
Writing skills	69	245	11	50	24	137	138
Percent	10.2	36.4	1.6	7.4	3.6	20.3	20.5
Specialized reference sources	241	56	44	63	46	269	30
Percent	32.2	7.5	5.9	8.4	6.1	35.9	4.0
Decision making	123	39	20	70	51	253	82
Percent	19.3	6.1	3.1	11.0	8.0	39.7	12.9
Search strategy	225	21	33	75	53	267	40
Percent	31.5	2.9	4.6	10.5	7.4	37.4	5.6
Subject field	63	222	25	101	25	185	69
Percent	9.1	32.2	3.6	14.6	3.6	26.8	10.0
General reference sources	311	29	44	48	41	260	43
Percent	40.1	3.7	5.7	6.2	5.3	33.5	5.5
Planning	161	34	16	75	59	256	71
Percent	24.0	5.1	2.4	11.2	8.8	38.1	10.6
Online searching	189	4	26	114	75	248	28
Percent	27.6	0.6	3.8	16.7	11.0	36.3	4.1
Reference interview	263	10	37	41	33	240	33
Percent	68.5	2.6	9.6	10.7	8.6	62.5	8.6
Selection of materials	213	30	28	42	19	269	44
Percent	33.0	4.7	4.3	6.5	2.9	41.7	6.8
Catalog codes/rules	298	5	31	49	41	235	38
Percent	42.8	0.7	4.5	7.0	5.9	33.7	5.5
Personnel management	141	32	12	76	78	247	65
Percent	21.7	4.9	1.8	11.7	12.0	37.9	10.0
Subject cataloging	258	4	27	29	24	206	34
Percent	44.3	0.7	4.6	5.0	4.1	35.4	5.8
Library automation	236	3	24	95	72	279	47
Percent	31.2	0.4	3.2	12.6	9.5	36.9	6.2
Subject classification	271	13	28	27	20	220	29
Percent	44.6	2.1	4.6	4.4	3.3	36.2	4.8
Structure of subject literature	209	62	27	48	22	209	25
Percent	34.7	10.3	4.5	8.0	3.7	34.7	4.2
Bibliographic/library instruction	160	20	19	73	52	257	44
Percent	35.6	3.2	3.0	11.5	8.3	41.1	7.0
Staff training & development	71	21	9	70	90	238	49
Percent	13.0	3.8	1.6	12.8	16.4	43.4	8.9
Totals	3,881	1,055	539	1,290	929	4,750	1,105
Percent	28.6	7.8	4.0	9.5	6.9	35.1	8.2

Table 3 lists the twenty knowledge bases most highly ranked on the amount of the knowledge possessed by the survey respondents. There are only three skills in this table that were not included in table 2. Research methods, one of the additions, was reported as being most frequently acquired in library school. Knowledge of filing rules and higher education were most often obtained on the job.

In that the contents of the tables are almost the same, it is not surprising that the totals are very similar. The respondents indicated that library school was the source of knowledge almost 30 percent of the time, on-the-job experiences represented 34 percent of the sources, and continuing education and staff development activities accounted for over 14 percent of the affirmative responses.

KNOWLEDGE BASES: WHERE BEST ACQUIRED?

In contrast, the responses regarding

TABLE 3

TWENTY TOP KNOWLEDGE BASES RANKED BY AMOUNT HELD AND YES RESPONSES FOR WHERE ACQUIRED

	Knowledge Source						
Knowledge Base	Library School	Other Degree Programs	Internship	Continuing Education	Staff Development	On-the-Job	Other
Bibliographic tools	299	37	57	79	52	289	55
Percent	34.5	4.3	6.6	9.1	6.0	33.3	6.3
Writing skills	69	245	11	50	24	137	138
Percent	10.2	36.4	1.6	7.4	3.6	20.3	20.5
Search strategy	225	21	33	75	53	267	40
Percent	31.5	2.9	4.6	10.5	7.4	37.4	5.6
Specialized reference sources	241	56	44	63	46	269	30
Percent	32.2	7.5	5.9	8.4	6.1	35.9	4.0
Subject field	63	222	25	101	25	185	69
Percent	9.1	32.2	3.6	14.6	3.6	26.8	10.0
General reference sources	311	29	44	48	41	260	43
Percent	40.1	3.7	5.7	6.2	5.3	33.5	5.5
Reference interview	263	10	37	41	33	240	33
Percent	68.5	2.6	9.6	10.7	8.6	62.5	8.6
Oral communication skills	80	168	21	65	52	186	141
Percent	11.2	23.6	2.9	9.1	7.3	26.1	19.8
Online searching	189	4	26	114	75	248	28
Percent	27.6	0.6	3.8	16.7	11.0	36.3	4.1
Selection of materials	213	30	28	42	19	269	44
Percent	33.0	4.7	4.3	6.5	2.9	41.7	6.8
Filing	191	5	32	8	17	252	49
Percent	34.5	0.9	5.8	1.4	3.1	45.5	8.8
Subject classification	271	13	28	27	20	220	29
Percent	44.6	2.1	4.6	4.4	3.3	36.2	4.8
Catalog codes/rules	298	5	31	49	41	235	38
Percent	42.8	0.7	4.5	7.0	5.9	33.7	5.5
Research methods	214	165	15	56	20	143	46
Percent	32.5	25.0	2.3	8.5	3.0	21.7	7.0
Bibliographic/library instruction	160	20	19	73	52	257	44
Percent	25.6	3.2	3.0	11.5	8.3	41.1	7.0
Structure of subject literature	209	62	27	48	22	209	25
Percent	34.7	10.3	4.5	8.0	3.7	34.7	4.2
Subject cataloging	258	4	27	29	24	206	34
Percent	44.3	0.7	4.6	5.0	4.1	35.4	5.8
Decision making	123	39	20	70	51	253	82
Percent	19.3	6.1	3.1	11.0	8.0	39.7	12.9
Higher education	100	112	9	48	20	162	83
Percent	18.7	21.0	1.7	9.0	3.7	30.3	15.5
Planning	161	34	16	75	59	256	71
Percent	24.0	5.1	2.4	11.2	8.8	38.1	10.6
Totals	3,938	1,281	550	1,161	746	4,543	1,122
Percent	29.5	9.6	4.1	8.7	5.6	34.1	8.4

where the librarians believed the proficiencies would best be acquired produced some different patterns (see table 4). The participating librarians indicated nine proficiencies (of the twenty most important) that were best learned in library schools. Those were: bibliographic tools, search strategy, general reference sources, reference interview, selection of materials, cataloging codes/rules, subject cataloging, subject classification, and the structure of subject literature. Two of these areas of knowledge (search strategy and selection of materials) were not among the skills most frequently acquired in library school.

A more substantial difference was found in analyzing perceptions of the knowledge bases best acquired on the job. In fact, the workplace was seen as the optimal place to acquire only two knowledge bases: specialized reference sources and selection of materials (tie). In contrast, twelve knowledge bases were reported as having been most frequently obtained on the job. This finding seems to correspond with White and Paris' observation that

TABLE 4

TWENTY MOST IMPORTANT KNOWLEDGE BASES AND YES RESPONSES FOR WHERE *BEST* ACQUIRED

Knowledge Base	Knowledge Source						
	Library School	Other Degree Programs	Internship	Continuing Education	Staff Development	On-the-Job	Other
Bibliographic tools	303	43	93	130	88	282	28
Percent	31.3	4.4	9.6	13.4	9.1	29.2	2.9
Oral communication skills	137	176	45	138	145	155	115
Percent	15.0	19.3	4.9	15.2	15.9	17.0	12.6
Writing skills	114	228	26	127	110	126	107
Percent	13.6	27.2	3.1	15.2	13.1	15.0	12.8
Specialized reference sources	248	61	84	132	93	276	21
Percent	27.1	6.7	9.2	14.4	10.2	30.2	2.3
Decision making	200	74	64	145	128	234	54
Percent	22.3	8.2	7.1	16.1	14.2	26.0	6.0
Search strategy	268	13	68	115	101	246	18
Percent	32.3	1.6	8.2	13.9	12.2	29.7	2.2
Subject field	73	239	39	136	40	157	51
Percent	9.9	32.5	5.3	18.5	5.4	21.4	6.9
General reference sources	308	22	93	112	91	267	21
Percent	33.7	2.4	10.2	12.3	10.0	29.2	2.3
Planning	230	71	63	156	134	243	38
Percent	24.6	7.6	6.7	16.7	14.3	26.0	4.1
Online searching	263	4	66	160	116	242	15
Percent	30.4	0.5	7.6	18.5	13.4	27.9	1.7
Reference interview	259	5	81	80	82	232	13
Percent	34.4	0.7	10.8	10.6	10.9	30.9	1.7
Selection of materials	245	24	70	91	71	245	14
Percent	32.2	3.2	9.2	12.0	9.3	32.2	1.8
Catalog codes/rules	294	1	59	94	82	230	13
Percent	38.0	0.1	7.6	12.2	10.6	29.8	1.7
Personnel management	205	75	50	167	150	223	36
Percent	22.6	8.3	5.5	18.4	16.6	24.6	4.0
Subject cataloging	271	10	60	72	64	216	15
Percent	38.3	1.4	8.5	10.2	9.0	30.5	2.1
Library automation	288	34	62	180	143	239	32
Percent	29.5	3.5	6.3	18.4	14.6	24.4	3.3
Subject classification	274	10	63	85	63	218	13
Percent	37.7	1.4	8.7	11.7	8.7	30.0	1.8
Structure of subject literature	236	84	47	97	47	197	17
Percent	32.6	11.6	6.5	13.4	6.5	27.2	2.3
Bibliographic/library instruction	241	15	66	131	118	233	9
Percent	29.6	1.8	8.1	16.1	14.5	28.7	1.1
Staff training and development	169	56	35	161	163	222	29
Percent	20.2	6.7	4.2	19.3	19.5	26.6	3.5
Totals	4,626	1,245	1,234	2,509	2,029	4,483	659
Percent	27.6	7.4	7.4	14.9	12.1	26.7	3.9

"the library directors who constituted the respondent population generally declared themselves willing to consider the transfer of certain topics or issues from what might otherwise be an overburdened and cluttered curriculum to on-the-job training. However, when they were asked to suggest specific courses or topics amenable to such treatment, very few recommendations emerged, and no consensus was apparent."[9]

Another significant difference between the responses for where proficiencies were acquired and perceptions of where they are best acquired was that nine knowledge bases were perceived as best gained in continuing education and staff development activities. No skills were reported as having been *most* frequently acquired from these two sources, although they represented about 16 percent of the "yes" responses (see table 2). The participants recommended that the remaining proficiency, knowledge of a subject field, be obtained through another degree program.

TABLE 5

TWENTY TOP KNOWLEDGE BASES RANKED BY AMOUNT HELD AND YES RESPONSES FOR WHERE *BEST* ACQUIRED

	Knowledge Source						
Knowledge Base	Library School	Other Degree Programs	Internship	Continuing Education	Staff Development	On-the-Job	Other
Bibliographic tools	303	43	93	130	88	282	28
Percent	31.3	4.4	9.6	13.4	9.1	29.2	2.9
Writing skills	114	228	26	127	110	126	107
Percent	13.6	27.2	3.1	15.2	13.1	15.0	12.8
Search strategy	268	13	68	115	101	246	18
Percent	32.3	1.6	8.2	13.9	12.2	29.7	2.2
Specialized reference sources	248	61	84	132	93	276	21
Percent	7.1	6.7	9.2	14.4	10.2	30.2	2.3
Subject field	73	239	39	136	40	157	51
Percent	9.9	32.5	5.3	18.5	5.4	21.4	6.9
General reference sources	308	22	93	112	91	267	21
Percent	33.7	2.4	10.2	12.3	10.0	29.2	2.3
Reference interview	259	5	81	80	82	232	13
Percent	34.4	0.7	10.8	10.6	10.9	30.9	1.7
Oral communication skills	137	176	45	138	145	155	115
Percent	15.0	19.3	4.9	15.2	15.9	17.0	12.6
Online searching	263	4	66	160	116	242	15
Percent	30.4	0.5	7.6	18.5	13.4	27.9	1.7
Selection of materials	245	24	70	91	71	245	14
Percent	32.2	3.2	9.2	12.0	9.3	32.3	1.8
Filing	231	4	47	43	65	229	21
Percent	36.1	0.6	7.3	6.7	10.2	35.8	3.3
Subject classification	274	10	63	85	63	218	13
Percent	37.7	1.4	8.7	11.7	8.7	30.0	1.8
Catalog codes/rules	294	1	59	94	82	230	13
Percent	38.0	0.1	7.6	12.2	10.6	29.8	1.7
Research methods	244	177	37	124	67	117	39
Percent	30.3	22.0	4.6	15.4	8.3	14.5	4.8
Bibliographic/library instruction	241	15	66	131	118	233	9
Percent	29.6	1.8	8.1	16.1	14.5	28.7	1.1
Structure of subject literature	236	84	47	97	47	197	17
Percent	32.6	11.6	6.5	13.4	6.5	27.2	2.3
Subject cataloging	271	10	60	72	64	216	15
Percent	38.3	1.4	8.5	10.2	9.0	30.5	2.1
Decision making	200	74	64	145	128	234	54
Percent	22.3	8.2	7.1	16.1	14.2	26.0	6.0
Higher education	121	103	20	77	43	145	62
Percent	21.2	18.0	3.5	13.5	7.5	25.4	10.9
Planning	230	71	63	156	134	243	38
Percent	24.6	7.6	6.7	16.7	14.3	26.0	4.1
Totals	4,560	1,364	1,191	2,245	1,748	4,290	684
Percent	28.4	8.5	7.4	14.0	10.9	26.7	4.3

Apparently, relatively new librarians and library directors are not in complete agreement on this issue. The librarians participating in this study supported continuing education as a valuable learning experience and suggested skills best learned through such programs. White and Paris observed that library directors supported continuing education but "there would appear to be no consensus that anything in particular should be . . . acquired through continuing education."[10]

The tables also reflect the respondents' shift from on-the-job training (see table 2) to continuing education and staff development (see table 4). While the total percentages of "yes" responses remained about the same for library school as a source of knowledge, total "yes" responses for "on the job" dropped from 35 percent to about 27 percent and continuing education and

TABLE 6

SUMMARY OF YES RESPONSES TO WHERE KNOWLEDGE WAS ACQUIRED AND WHERE IT IS *BEST* ACQUIRED

Knowledge Base	Knowledge Source: Library School	Other Degree Programs	Internship	Continuing Education	Staff Development	On-the-Job	Other
Most important and where acquired	3,881	1,055	539	1,290	929	4,750	1,105
	28.6%	7.8%	4.0%	9.5%	6.9%	35.1%	8.2%
Most important and where best acquired	4,626	1,245	1,234	2,509	2,029	4,483	659
	27.6%	7.4%	7.4%	14.9%	12.1%	26.7%	3.9%
Change in percentage	-1.0%	-0.4%	+3.4%	+5.4%	+5.2%	-8.4%	-4.3%
Amount held and where acquired	3,938	1,281	550	1,161	746	4,543	1,122
	29.5%	9.6%	4.1%	8.7%	5.6%	34.1%	8.4%
Amount held and where best acquired	4,560	1,364	1,191	2,245	1,748	4,290	684
	28.4%	8.5%	7.4%	14.0%	10.9%	26.7%	4.3%
Change in percentage	-1.1%	-1.1%	+3.3%	+5.3%	+5.3%	-7.4%	-4.1%

staff development combined jumped from 16 percent to 27 percent. Stated another way, all but two of the ten skills that dropped out of on-the-job training as an actual source of information ended up in the continuing education/staff development category as a recommended source of job skills.

An analysis of the twenty top knowledge bases as ranked by the perception of the amount of knowledge held (see table 5) revealed few differences. Again, the use of different rankings produced only three differences: research methods, filing, and higher education replaced personnel management, library automation, and staff training and development. Filing did shift from the on-the-job training category (see table 3) to the library school category (see table 5). The total percentages of "yes" responses are about the same in tables 4 and 5. A comparison of totals in tables 3 and 5, however, reveal changes in percentages similar to those evidenced by tables 2 and 4. That is, internships, continuing education, and staff development activities were more often reported as preferred than as actual sources of knowledge while the reverse was true for on-the-job training. Responses for library school again remained about the same.

Table 6, which presents only the totals from tables 2 through 5, further illustrates the differences just discussed. Comparing the "where acquired" and "where best acquired" cells in the upper and lower halves of the table, the major increases are in the continuing education and staff development columns, and the major decreases are in the on-the-job column. The increases in the percentages for the internship column are significant as well.

SUMMARY AND CONCLUSIONS

This article has focused on the second phase of a study of ARL librarians and their perceptions of the amount and importance of their professional knowledge, where they acquired such knowledge, and where they think it should be acquired. Findings of the first phase indicated that, while a traditional core of library knowledge is still highly valued, proficiencies in areas such as automation and management are deemed important by this group of librarians as well.[11] Of concern, however, is the fact that these librarians seem to lack substantial knowledge in some of the areas that they perceive as important. Assuming that is indeed the case, it becomes critical to identify where librarians are acquiring what knowledge they do have and to develop recommendations for where relevant knowledge can be obtained most effectively. Such concerns provided the major rationale for the additional data analysis in this report.

The second stage of the data analysis shed light on where librarians gain their

knowledge. Formal library school programs and on-the-job training account for the bulk of the professional knowledge among the study's participants, with library schools imparting more traditional learning. Study participants prefer to rely more heavily on continuing education and staff development programs and less heavily on on-the-job experience. Their recommendations for what should be learned in library school remain about the same as reported in the first analysis.

A shortage of appropriate opportunities may be the reason why librarians have been learning more on the job than through continuing education. As White and Paris noted, "reports from professional societies, state agencies, and individual libraries report a level of participation [in continuing education] which touches at best only a small part of the profession and then only haphazardly."[12] Yet academic librarians, at least, appear to prefer continuing education over on-the-job training as a mode of learning.

If librarians are not content to acquire as much of their professional expertise on the job as in the past, then appropriate agencies may need to expand their continuing education offerings and library administrators may need to strengthen their staff development programs and support for alternative opportunities. Schools of library and information science may be well advised to take another look at the desirability of expanding their curricula to two-year programs, as some have done already. In short, an appropriate variety of educational opportunities will be necessary to meet the increasing needs of librarians in a more complex environment.

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