Library and Information Science Competencies Revisited

Lois Buttlar and Rosemary Du Mont

This study ascertains the attitudes of library school alumni regarding the value of including various competencies in an M.L.S. program in order to facilitate curriculum planning. A total of 736 alumni rated a list of fifty-five competencies. Twenty-five percent of alumni had been out of library school less than three years; 60 percent had been out less than ten years. The largest category of respondents is represented by public librarians (39 percent), followed by academic librarians (20 percent), school librarians (19 percent), special librarians (10 percent), and those in nonlibrary settings (12 percent). There was a significant relationship between the type of library course taken during library school and the type of library in which the respondent found employment. Children's and young adult literature was the most popular "type of literature" course taken. The five competencies ranked most frequently as essential include: knowledge of sources, collection management skills, conducting a reference interview, communicating effectively in writing, and the ability to apply critical thinking skills to library problems. Rating of competencies was also analyzed by beginning librarians. Competencies valued also differed as a function of setting. Findings were compared to those of an earlier study conducted by the authors in 1987.

Change in the information profession has been ongoing and extensive. The literature abounds with accounts of the impact of technological innovations on not only access to and delivery of information,¹ but on the education of the library and information science student.^{2,3} In addition to new curricular emphases related to automation and information technology, there is the need to prepare library and information science graduates to deal with new political and social implications for the field, as represented by increasingly diversified information clientele and library users.^{4,5} A recent issue of the American Library Association's *Library Personnel*

News includes Jane Robbins and Ruby Licon's report of research findings focusing on the needs of library education in the twenty-first century. Librarians will not only need the basic core of traditional skills and professional knowledge, but a new list of requirements identified as: "flexibility; lifetime learning; people skills; technological skills; business skills including marketing, negotiation, and strategic planning; and valuing diversity."⁶

Marydee Ojala asks whether requirements and qualifications of the professional staff of the virtual library will be vastly different than those required of today's library staff members.

About the Authors

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Will patrons of the library without walls, or, as she calls them, information services clientele, expect the library to come to them, and, if so, how will core competencies change? To accommodate this demand she says:

the Cybrarian must access electronic and print sources, know navigation skills for all networks, facilitate exchanges with other Cybrarians, identify outside experts, and recognize pockets of undiscovered data . . . Cybrarians organize information so that it is usable. This may include traditional indexing and abstracting, but it can also mean adding data to a corporate bulletin board or an enterprise-wide information database. It can mean creating the knowledge base for the networked company, or it can mean interpreting the meaning of the information.⁷

Increased demands for service in new and nontraditional ways, coupled with declining budgets and diminished fiscal opportunities, have challenged those who teach using a traditional library school curriculum. Identifying new required competencies and incorporating them into traditional education means expanding the curriculum with new courses—particularly new core requirements. In a period of economic constraint, it is difficult to convince students to extend their M.L.S. degree programs. Therefore, ongoing assessment of the curriculum by library

school administrators and faculty is essential in order that all significant competencies are included within a relatively short program. Administrators and faculty need to ask the following questions: What are the essential basic skills that graduates need as they enter the field of librarianship? What kind of knowledge and attitudes will best prepare students for both immediate and future roles as information providers and managers?

Library school alumni who know the content of their own courses of study and are familiar with the daily real life requirements faced by the practitioner can provide excellent input for answering the above questions. According to the Council of the American Library Association, evaluation of a library and information studies program should be ongoing, should be used to make improvements and to plan for the future, and should involve those served by the program, including alumni.⁸

Purpose of the Study

The purpose of this study is to ascertain the attitudes of library school alumni regarding the value or usefulness of various competencies for inclusion in an M.L.S. program. The study will update and compare the findings of a previous study, conducted by Buttlar and Du Mont in 1989.⁹

Definition of Terms

For the purpose of this study the definition of competency incorporates the three components of knowledge, skills, and attitudes, as defined by other researchers conducting major studies in this area.^{10,11}

Review of the Literature

Concern for the future direction of education for librarianship is well documented. In the original study undertaken by Buttlar and Du Mont, it was found that knowledge of bibliographic tools, interpersonal skills with patrons, and the ability to select and evaluate materials, conduct a reference interview, and provide reader guidance were rated as most essential by all respondents. It was also found that the type of setting in which librarians or information specialists work plays an important role in their perception of competencies required in the profession.¹² Studies in the literature since support some of these findings, but also address new priorities. Discussion of the literature emphasizes the importance of core competencies, beginning with those identified the most frequently and ending with those mentioned the least.

Management Skills

With the downgrading of many library positions as a result of technological innovations, Paul Sandwith, library management consultant, states that work formerly done by managers has now become the work of nonmanagerial employees. He identified managerial skills that are subsets of five major domains: conceptual/creative, leadership, interpersonal, administrative, and tech-

nical.¹³ The new trend of professional librarians being increasingly placed in positions where they must coordinate and supervise the work of others is reflected in the literature where various types of management skills were also found to be important (Hill,¹⁴ Butcher,¹⁵ and Immroth¹⁶).

Parachuk, Mandel, and Wolven also maintain that skills of planning, designing and developing, and implementing (with modification and revision, if necessary) are essential to efficient work flow and production. They identified other managerial skills—such as training, advising, and consulting with colleagues and subordinates—as routine activities.¹⁷ Woodsworth and Lester developed a set of competencies based on the staffing needs of a model of a research library of the future.¹⁸ Emphasized are library programs that develop leadership ability, among other competencies, while organizational skills were included in a core list by Stafford and Serban.¹⁹ Rockman and others indicated that supervision and management skills related to managing conflict and organizational change were desired, as were skills related to motivating and marketing.²⁰ This conclusion was supported by Robbins, who confirmed the need for managerial skills in recognizing and analyzing problems and the ability to effect change.²¹

Skills Related to Automation or Technology

Although technological skills were rated relatively high in the 1989 study, they were not in the top five list of core competencies. The literature since that period seems to again emphasize the importance of these skills, perhaps, due to the increasing pervasiveness of auto-

mation, electronic databases, networking, and resource sharing. Technological competency was found to be a high priority in all studies except for a study conducted by Odini, which focused on training in interpersonal skills.²² A competency list developed by the Association for Library Service to Children (ALSC) required networking skills,²³ and Rockman concluded that reference librarians needed computer technology. Rockman went so far as to define competency in computer technology as the ability to use and create computer systems and databases, and familiarity with networking practices.²⁴

Knowledge of Reference and Information Sources

Rockman, in describing demands and challenges of the reference librarian of the future, suggests that knowledge of information sources is still very important. She defines reference skills as the ability to quickly locate and retrieve information and an understanding of the research process.²⁵ Immroth described the categories of competencies developed by the ALSC for public librarians who serve children. Knowledge of traditional and automated reference sources was listed as a major category of competencies and was also emphasized in a similar list compiled by Bauner, who described information abilities for entry level reference librarians.²⁶ Second on the list of core competencies compiled by Stafford and Serban is "knowledge of traditional and automated reference sources."²⁷

Some studies have focused on the competencies sought by employers through an analysis of job advertisements placed in professional journals and newsletters. Job descriptions of forty-four Georgia school systems were

analyzed by O'Neal, who concluded that providing varied information sources ranked high.²⁸

Interpersonal Skills

In studying ten years of job advertisements for academic library positions, Hill found an increase in the demand for interpersonal skills.²⁹ Butcher outlined skills expected of business information specialists in several categories including personal skills.³⁰ Parachuk, Mandel, and Wolven looked at skills of the catalog librarian in light of twenty-four skills listed in *The Dictionary of Occupational Titles*. They found that six skills matched those from the broad category "skills with people."³¹ Woodsworth and Lester developed a set of competencies based on the staffing needs of a model of a research library of the future. Emphasized are library programs that develop interpersonal skills.³² Odini focused on the importance of training librarians and information specialists in interpersonal skills. He considered the most important of these to be:

1. two-way communication skills (oral, written, listening, questioning);
2. a positive and confident professional behavior style;
3. leadership and team work; and
4. understanding human behavior and interpersonal relationships.³³

Communication Skills

Although Odini describes communication skills as types of interpersonal skills, most authors seem to see the former as closely related to, but not exactly the same as, interpersonal skills. Rockman writes that communication skills include the ability to give presentations

to groups, including prospective donors, as well as the ability to write guides, articles, and grant proposals.³⁴ The desirability of communication skills is also apparent in the lists resulting from the research of both Immroth and Hill cited above.

Reference Interview/ Reader Guidance

The present literature related to core competencies did not specifically address either the reference interview or providing bibliographic instruction, although it may be assumed that these competencies could be subsumed under any of the following: Butcher's emphasis on "information skills,"³⁵ O'Neal's conclusion that instructional design skills were essential,³⁶ or Odini's attribution of importance to "a positive and confident professional behavior style."³⁷

Selection and Evaluation Abilities

Materials and collection development is one of the seven competencies valued by the ALSC.³⁸ O'Neal also concluded from her study of Georgia school systems that selection and utilization skills were always required.³⁹

Technical Services Competencies

O'Neal's study of Georgia school systems revealed that technical processing competencies were ranked high,⁴⁰ but overall these competencies were not found to be high priorities in the studies identified in this literature review.

Relatively little research has been conducted surveying library school alumni to learn what competencies they consider important. A limited study was done at the School of Library and

Information Science at the University of Iowa in the 1980s, but the random sample was quite small (150 alumni were sent questionnaires).⁴¹ The present follow-up study yields information for curricular decision making and adds another dimension to the literature related to core competencies.

Methodology

A curriculum planning survey involved development of a questionnaire that elicited demographic information about alumni and their attitudes concerning the importance of competencies related to the field of library and information science. The demographic information was related to the type of library in which the respondent was employed, how long he or she had been out of library school (beginning or experienced librarians), and the "type of literature" and "type of library courses" taken in the library school program. A review of the professional literature was conducted to identify competencies for inclusion in the questionnaire and in order to expand and/or modify the questionnaire used in the 1987 study (which was based to a large extent on the competencies listed in the study done by Griffiths and King⁴²). As a result, alumni were asked to rate a list of fifty-nine competencies from one to four depending on whether they thought the competency was essential (1), very useful (2), somewhat useful (3), or not very useful (4).

Competency ratings were tabulated to see which were rated essential or number one the most frequently. In addition, mean scores were conducted for each competency in order to determine those that rated the highest. Cross-tabulations were prepared to indicate atti-

tudes about competencies by type of library or by beginning and experienced librarians. Chi-square analyses were conducted to determine whether the type of library course taken in library school was related to the type of library in which an alumnus was employed, and whether ratings were related to library experience and library type.

Findings

A total of 736 (41.04 percent) of the questionnaires were returned, 726 (40.4 percent) of which were usable. In 11 cases, the respondents did not complete their questionnaires because, after graduating with the M.L.S. degree, they never worked in a library or library-related setting.

More of the respondents (291 or 41 percent) rated the competencies with the public library in mind than any other type of library (see table 1), followed by the school library (157 or 22.1 percent), and the academic library (156 or 22 percent). The public library is also the most popular "type of library" course, having been taken by 313 (31.7 percent) of the responding alumni. In order to determine how many alumni are presently working in a type of library corresponding to the "type of library" course they took while in library school, a chi square analysis of these two variables was conducted. A chi square value of 396.229 ($p = .00$) indicates that a highly significant relationship exists between these two factors (see table 2). These findings support those of White and Mort, who found that 54 percent of library science graduates took positions in the kind of professional library settings in which they had expected to work.⁴³

Almost half (48.9 percent) of the respondents reported having taken the chil-

Table 1
Library Specialization by Which
Respondents Rated Competencies

Type of Library	f	%
Public	291	40.99
Academic	156	21.97
Special	89	12.54
School	157	22.11
Nonlibrary setting	17	2.39
Total	710	100.00

f = frequency

dren's/young adult literature course; the next most popular offering was the literature of the humanities course, taken by 202 (27.8 percent) of the responding librarians (see table 3).

About 25 percent of the respondents are beginning librarians and have been out of library school less than three years. As would be expected, for the most part there is a negative correspondence between the number of alumni responding to the survey and the number of years they have been out of library school (see table 4).

Since there are more public libraries than other types of information centers, it is not surprising that 280 (38.67 percent) of the responding alumni are currently employed in public libraries (table 5). Respondents were asked to rate particular competencies, and a strong correspondence between where alumni are employed and the library specialization they had in mind when they rated the competencies was found.

The ten competencies that were rated number one (or most essential) the most frequently are presented in table 6. Overall, for all types of libraries, the most important competencies are related to reference service, collection

Table 2
Relationship Between Type of Library Course Taken and
Type of Library in Which Currently Employed*

Employed	Type of Library Course											
	Public		Academic		Special		School		None		Total	
	f	%	f	%	f	%	f	%	f	%	f	%
Public	181	18.3	44	4.5	54	5.5	44	4.5	41	4.2	364	36.8
Academic	28	2.8	92	9.3	43	4.3	7	.7	23	2.3	193	19.5
Special	19	1.9	26	2.6	40	4.1	2	.2	6	.6	93	9.4
School	54	5.5	17	1.7	22	2.2	114	11.5	12	1.2	219	22.2
Nonlibrary settings	30	3.0	26	2.6	30	3.0	22	2.2	10	1.0	118	11.9
Total	313	31.7	205	20.7	189	19.1	189	19.1	92	9.3	988	100.0

*Chi square value = 396.229

p = .00

Sample size = 988

Degrees of freedom = 24

management, management, and research, with "knowledge of information sources in all formats to answer typical reference questions" rated as essential by 78 percent of the responding alumni. When the analysis of the most valued

Table 3

"Type of Literature" Courses Taken
in MLS Program

Course	N = 726	f	%
Humanities		202	27.8
Science/Technology		139	19.1
Social sciences		165	22.7
Health sciences		36	5.0
Legal information		19	2.6
Music bibliography		26	3.6
Children's/Young Adult		355	48.9
No "type of literature" course		78	10.7

N = number of respondents to particular question; varies per table

competencies is done by considering the whole range of responses, or using the mean score (the lower the mean score the higher the competency is rated), the list of the ten most highly rated competencies is almost identical to that generated by those choosing the number one "essential" category the most frequently. The only exception is that the competency rated tenth drops out when mean scores are used, and is replaced by the competency "apply appropriate standards and guidelines to develop and evaluate library collections and service."

Rating of Competencies by Type of Library

When competencies rated "most essential" are analyzed by type of library, some variations can be seen. Knowledge of information sources in all formats to answer typical reference questions and conducting an appropri-

Table 4

Years Librarians Have Been out of School

Years	f	%
Less than 3	184	25.4
3-5	97	13.4
6-10	148	20.4
11-15	138	19.0
16-20	92	12.7
21-25	44	6.1
26-30	17	2.3
More than 30	5	0.7
Total	725	100.0

ate reference interview are still important in public, academic, and special libraries, but do not rate in the top five list of alumni in school libraries or non-library settings. In fact, special libraries

Table 5

Type of Library Information Center in Which Respondents Are Currently Employed

Library/Information Center	f	%
Public	280	38.67
Academic	143	19.75
Special	69	9.53
School	141	19.48
Nonlibrary	91	12.57
Total	724	100.00

would extend these reference service related skills to include effective searching of online databases. Skills related to selecting, evaluating, and managing the collection are important to public and school librarians; academic and special librarians value the ability to use critical thinking skills to solve

Table 6

Ten Competencies Rated Most Frequently as Essential

Competency	N	f	%
Knowledge of sources in all formats to answer typical reference questions	722	563	78.0
Collection management skills (development, selection, deselection, preservation)	722	539	74.7
Conduct appropriate reference interview	716	519	72.5
Communicate effectively in writing reports, proposals, procedural manuals, correspondence, etc.)	722	474	65.7
Apply critical thinking skills to library problems	715	457	63.9
Apply effective human relations skills in group processes	719	451	62.7
Select and evaluate print and nonprint materials	723	447	61.8
Apply appropriate principles to weed and inventory materials and equipment	721	420	58.3
Utilize oral communication skills to make presentations	721	410	56.9
Develop selection policies	716	394	55.0

library problems and communication skills, both written and oral. Alumni in nonlibrary settings also place a high priority on communication skills and the closely related human relations skills, as well as a knowledge of computer operating systems (see table 7).

Beginning vs. Experienced Librarians

There is a very strong overlap in ratings of competencies by beginning and experienced librarians in all types of libraries. Beginning academic librarians are more concerned about the ability to effectively search online databases than experienced librarians; the latter value the ability to utilize oral communication skills to make presentations. This is very likely reflected in the demands of their jobs as they change over time. Beginning special librarians value a knowledge of networking options (Internet, BITNET, NII, state, regional, collegial, etc.). A larger number of both school and public librarians rank the ability to provide reader guidance higher as they progress in their careers. Experienced school librarians also appreciate the ability to provide bibliographic instruction to users. More recent graduates who work in nonlibrary jobs rate application of effective human relations skills in group processes highly; experienced librarians in these settings value knowledge of computer operating systems (see tables 8 and 9).

Mean Score Comparisons

When mean score comparisons for beginning and experienced librarians are made by type of library, it should be kept in mind that the lower the mean score, the higher the competency is rated. T test analysis confirmed findings determined by frequencies arranged in order of magnitude. Experienced aca-

demic librarians are more concerned than beginning librarians about the ability to apply appropriate standards and guidelines to develop and evaluate library collections and services. They also see the value of a reading proficiency in foreign languages, interacting with professional associations, and recruiting, interviewing, and hiring personnel.

Experienced special librarians, on the other hand, see the need to assess legislation in terms of implications for libraries and to be able to communicate effectively in writing reports, proposals, procedural manuals, correspondence, and other documents.

It was found that school librarians' ratings are more apt to differ significantly as a result of the number of years out of school than any of the other groups. School librarians rate the competency of selecting, acquiring, organizing and evaluating print and nonprint materials, including government publications, significantly higher after they have been on the job for a number of years. Experience in librarianship also influenced opinions about the importance of applying standards to evaluate collections. Other mean score differences related to school librarian respondents are identified in table 10.

Skills related to management or library administration—for example, those related to evaluation, policy development, personnel, outreach to other professionals, networking, or providing end user instruction—are always ranked higher by experienced librarians in any type of library setting.

Implications for Library Science Education

Conventional educational practice in accredited schools of library and infor-

Table 7-
Five Most Highly Rated Competencies by Type of Library

Competency	N	f	%
Public			
Conduct an appropriate reference interview	291	253	86.94
Collection management skills	291	252	86.60
Knowledge of sources in all formats	290	246	84.83
Select and evaluate print/nonprint materials	291	203	69.76
Develop selection policies	289	201	69.55
Academic			
Knowledge of sources in all formats	154	121	78.57
Conduct an appropriate reference interview	153	105	64.52
Apply critical thinking to library problems	153	101	66.01
Communicate effectively in writing	155	100	64.52
Utilize oral presentation skills to make presentations	156	95	60.26
Special			
Knowledge of sources in all formats	89	72	80.90
Effectively search online databases	89	70	78.65
Conduct an appropriate reference interview	89	70	78.65
Communicate effectively in writing	89	70	78.65
Apply critical thinking skills to library problems	89	60	68.15
School			
Collection management skills	156	122	78.21
Apply principles to weed/inventory materials and equipment	157	122	77.71
Select and evaluate print/nonprint materials	156	120	76.92
Provide reader guidance	157	120	76.43
Provide bibliographic instruction (including library orientation)	156	112	71.79
Other Nonlibrary Settings			
Communicate effectively in writing	17	15	88.24
Utilize oral communication skills to make presentations	17	13	76.47
Apply effective human relations skills in group processes	16	12	75.00
Knowledge of computer operating systems	17	12	70.59
Make oral presentations to user groups, government agencies, etc.	16	11	68.75

Table 8

Top Five Competencies Rated as Essential by Beginning Librarians
(One to Three Years) by Type of Library

Competency	N	f	%
Public			
Conduct an appropriate reference interview	83	68	81.93
Collection management skills	83	67	80.72
Knowledge of sources in all formats	83	63	75.90
Recruit, interview, and hire personnel	83	59	71.08
Develop selection policies	83	57	68.67
Academic			
Knowledge of sources in all formats	40	32	80.00
Conduct an appropriate reference interview	39	25	64.25
Effectively search online databases	40	23	57.50
Communicate effectively in writing	40	23	57.50
Apply critical thinking skills to library problems	39	23	57.50
Special			
Knowledge of sources in all formats	24	21	87.50
Effectively search online databases	24	20	83.33
Conduct an appropriate reference interview	24	19	79.17
Develop and maintain a budget plan	24	19	79.17
Knowledge of networking options	24	16	66.67
Knowledge of computer operating systems	24	16	66.67
Collection management skills	24	16	66.67
School			
Collection management skills	31	24	77.42
Weed and inventory materials and equipment	31	21	67.74
Communicate effectively in writing	31	20	64.52
Select and evaluate print/nonprint materials	30	19	63.33
Provide reader guidance	31	19	61.29
Other nonlibrary settings*			
Knowledge of networking options	2	2	100.00
Participate in local access cable television services/programming	2	2	100.00
Apply effective human relations skills in group processes	2	2	100.00
Utilize oral communication skills in presentations	2	2	100.00

*Four competencies are listed inasmuch as 11 had a frequency of 1.

Table 9
Top Five Competencies Rated Essential by Experienced Librarians
(Five+ Years) by Type of Library

Competency	N	f	%
Public			
Knowledge of sources in all formats	167	150	89.82
Collection management skills	168	149	88.69
Conduct an appropriate reference interview	168	148	88.09
Provide reader guidance	168	121	72.02
Select & evaluate print/nonprint materials	168	120	71.43
Academic			
Knowledge of sources in all formats	93	68	73.12
Communicate effectively in writing	92	62	67.39
Apply critical thinking skills to library problems	88	62	70.46
Conduct an appropriate reference interview	92	61	66.30
Utilize oral communication skills to make presentations	92	57	61.96
Special			
Communicate effectively in writing	50	43	86.00
Knowledge of sources in all formats	50	41	82.00
Conduct an appropriate reference interview	50	41	82.00
Effectively search online databases	50	38	76.00
Apply critical thinking skills to library problems	49	33	67.35
School			
Select/evaluate print/nonprint materials	112	93	83.04
Provide reader guidance	112	93	83.04
Apply principles to weed/inventory materials/equipment	112	86	80.36
Provide bibliographic instruction	112	86	76.79
Collection management skills	111	86	77.48
Nonlibrary settings			
Communicate effectively in writing	11	10	90.91
Knowledge of computer operating systems	11	9	81.82
Knowledge of sources in all formats	11	7	63.64
Utilize oral communication skills to make presentations	11	7	63.64

*Only four competencies listed as four each had a frequency of 6.

Table 10

Significantly Different Mean Ratings for Beginning and Experienced Librarians by Type of Library (the lower the mean score the higher the rating)

Competency	N	Lib'n	Mean	SD	SEM	T
Public						
Knowledge of sources in all formats	83	Beg.	1.265	0.520	0.057	2.27
	167	Exp.	1.120	0.377	0.029	2.52*
Select, acquire, organize govt. pubs.	82	Beg.	3.049	0.752	0.083	1.28*
	168	Exp.	2.827	0.766	0.059	1.35
Provide reader guidance	83	Beg.	1.675	0.783	0.086	3.75
	168	Exp.	1.315	0.549	0.042	4.21**
Knowledge of computer operating systems	83	Beg.	1.819	0.799	0.877	-2.17*
	165	Exp.	2.061	0.874	0.068	-2.11
Evaluate automated systems	83	Beg.	1.711	0.819	0.090	-2.25*
	167	Exp.	1.964	0.877	0.068	-2.20
Academic						
Apply standards to evaluate collections	37	Beg.	2.135	0.751	0.124	2.65**
	89	Exp.	1.742	0.776	0.082	2.62
Reading proficiency in foreign languages	36	Beg.	3.111	0.747	0.125	2.70**
	86	Exp.	2.698	0.827	0.089	2.59
Provide reader guidance	35	Beg.	2.500	0.845	0.141	2.95**
	85	Exp.	2.000	0.873	0.095	2.91
Weed and inventory materials and equipment	37	Beg.	2.189	0.739	0.122	2.40*
	89	Exp.	1.831	0.815	0.086	2.30
Develop selection policies	37	Beg.	2.135	0.855	0.141	2.46*
	87	Exp.	1.724	0.845	0.091	2.47
Interact with professional associations	37	Beg.	2.297	0.909	0.149	2.21*
	88	Exp.	1.920	0.776	0.828	2.35
Design and maintain documentary records	36	Beg.	2.528	0.845	0.141	2.29*
	87	Exp.	2.138	0.891	0.096	2.24
Recruit, interview and hire personnel	37	Beg.	2.189	0.938	0.154	2.67
	89	Exp.	1.730	0.719	0.073	2.97**
Special						
Knowledge of computer operating systems	24	Beg.	1.375	0.576	0.118	-2.18*
	50	Exp.	1.700	0.647	0.091	-2.09
Assess Implications of legislation	23	Beg.	3.087	0.793	0.165	2.09*
	49	Exp.	2.653	0.879	0.126	2.01
Communicate effectively in writing	24	Beg.	1.542	0.833	0.170	1.97
	50	Exp.	1.180	0.482	0.068	2.36*

Table 10—Continued

Competency	N	Lib'n	Mean	SD	SEM	T
School						
Select, acquire, and organize govt. pubs.	31 112	Beg. Exp.	3.677 3.117	0.475 0.803	0.085 0.076	4.92 3.71**
Select/evaluate print and nonprint materials	30 112	Beg. Exp.	1.567 1.205	0.858 0.487	0.157 0.046	2.21 3.01**
Select, evaluate, use computer software	31 112	Beg. Exp.	1.903 1.536	0.831 0.734	0.149 0.069	2.23* 2.40
Select, operate, and maintain hardware	31 112	Beg. Exp.	1.677 1.339	0.909 0.562	0.163 0.053	1.97 2.56*
Apply standards to evaluate collections	31 112	Beg. Exp.	1.774 1.339	0.805 0.623	0.145 0.059	2.79** 3.22
Organize/maintain CAI services	30 111	Beg. Exp.	2.567 2.180	0.858 0.811	0.157 0.077	2.21* 2.29
Participate in local cable TV services	31 112	Beg. Exp.	2.774 2.179	1.023 0.830	0.184 0.078	2.98** 3.36
Catalog nonprint materials	31 112	Beg. Exp.	2.194 1.670	1.046 0.776	0.188 0.073	2.60 3.07**
Expand services through networking	28 110	Beg. Exp.	2.607 2.109	0.737 0.839	0.139 0.080	3.10** 2.87
Develop SDI and current awareness services	27 95	Beg. Exp.	3.148 2.674	0.818 0.831	0.157 0.085	2.65* 2.63
Bib. instruction and orientation	30 112	Beg. Exp.	1.567 1.250	0.817 0.475	0.149 0.045	2.03 2.74**
Provide reader guidance	31 112	Beg. Exp.	1.581 1.197	0.848 0.462	0.152 0.436	2.43 3.34**
Create information systems	28 109	Beg. Exp.	3.000 2.578	0.667 0.874	0.126 0.084	2.79** 2.38
Prepare pathfinder/ subject guide	29 106	Beg. Exp.	2.483 2.085	0.911 0.841	0.169 0.082	2.12* 2.22
Weed and inventory materials/equipment	31 112	Beg. Exp.	1.516 1.241	0.890 0.541	0.160 0.051	1.64 2.15
Evaluate automated systems	31 111	Beg. Exp.	1.839 1.342	1.036 0.564	0.186 0.054	2.56 3.53**

* $p \leq .05$ ** $p \leq .01$

mation science is geared toward training students whose knowledge, skills, and abilities provide the greatest fit with clearly defined requirements of specific jobs in specific settings. Yet traditional education in this field does not always consider characteristics of the setting and how they affect specific kinds of work—for example, how the work of the reference librarian is affected by setting, be it a public, academic, or special library. Traditional education also ignores characteristics of the person that are irrelevant to immediate job requirements and competencies. The findings in this study would seem to suggest that there are many significant differences in competencies needed based on type of setting. Thus, one can conclude that a form of library science education, based on setting (i.e., public library, academic library, etc.) appears to be appropriate and needed.

A new model of education would expand that conclusion, however. This model suggests that education should be geared toward educating the “whole” person who will fit well into the culture of a particular setting, regardless of job. Each student should thus learn to define and assess the work environment in terms of the characteristics of the setting, rather than just in terms of the characteristics of a specific job. It also suggests that students should know the behaviors and responsibilities that lead to organizational effectiveness, and implies that knowledge of these characteristics will lead to appropriate behaviors when students get out on the job.

Those of us teaching students must thus deal with students in terms of who they are, not just what they learn to do. Of course, our students must be technically competent. All respondents to our

survey identified specific technical skills as highly necessary. But technical skills do not necessarily mean that an individual has the appropriate behavioral characteristics necessary to be successful in a given work setting. Students must also learn about the needs, values, and interests of the type of organization for which they wish to work and learn to evaluate their own abilities to fit into a particular organizational setting.

Perhaps the most disturbing finding from this study was a decrease in interest from the earlier study conducted in 1987 in those people-oriented skills related to guiding, communicating, and interacting with patrons and staff members, and particularly those skills that help individuals cope with change. Could this be attributed to new demands on time as librarians struggle to keep up with constant technological innovations? Or perhaps automation has encouraged inducers to have less contact with librarians.

Librarianship is a high-involve-ment career choice, one in which interaction with staff and patrons is a highly significant part of the job. Thus, concentrating on technical skills is not enough. Staff must feel a sense of commitment in working for this type of organization. Furthermore, jobs in libraries are dynamic. Over time, librarians will be expected to learn new and different skills and to take on an increasing share of decision making as their technical skills expand. In addition to the necessary technical skills, two personality characteristics are especially important. One is called “growth need strength.”⁴⁴ Professional positions in librarianship place many demands on employees for continuous learning, decision making, and assuming responsibility for organizational structure, functioning, and perform-

ance. Thus, those who have no desire to learn and those who prefer narrowly defined skill-oriented jobs may truly be misfits in a dynamic library setting.

Conversely, those who value or have strong needs for personal growth, accomplishment, and development will be more committed to working in the discipline of librarianship as it evolves. Will these committed individuals be selected for positions in libraries if those already in the field do not see the need for competency in behavioral areas?

Based on this study, it would appear that five areas need attention in library and information science education so that future alumni will have a broadened view of competencies needed in the field:

- breadth of curriculum and pedagogical technology to broaden the scope of the interests of library and information science students;
- greater attention to the external environment (e.g., government relations, societal trends, legal climate, and international developments) that affects the institutions in which students will work;
- recognition that libraries are increasingly service-oriented, and that all jobs have service implications;
- integration of curricula across functional areas; and
- additional education in interpersonal and communication skills.

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Appendix

List of Competencies

1. Apply knowledge of information sources in all formats to answer typical reference questions.
2. Apply in-depth knowledge of bibliographic tools to specific subject reference problems.
3. Effectively search online databases.
4. Have reading proficiency in one or more foreign languages.
5. Load, maintain, and access machine-readable data files.
6. Select, acquire, and organize government publications.
7. Select and evaluate a variety of print and nonprint materials.
8. Select, evaluate, and use microcomputer software for library management.
9. Select, operate, and maintain audio-visual equipment and computer hardware.
10. Apply appropriate standards and guidelines to develop and evaluate library collections and service.
11. Knowledge of networking options (Internet, Bitnet, NII, state, regional, collegial, etc.)
12. Organize and maintain computer-assisted instruction (CAI) services.
13. Participate in local access cable television services/programming.
14. Plan, organize, and maintain audio-visual media services.
15. Apply indexing/abstracting techniques to local materials.
16. Catalog nonprint materials (computer software, microforms, films, etc.).
17. Effectively use tools to produce original cataloging of print materials.
18. Expand local services through cooperative networking.
19. Construct and modify the online catalog.
20. Prepare keyword and other coordinate indexes.
21. Knowledge of local and national cataloging standards.
22. Develop SDI (selective dissemination of information) and current awareness services.
23. Develop and evaluate the effectiveness and/or cost benefit of specific programs/services.
24. Provide bibliographic instruction (including library orientation).
25. Provide reader guidance.
26. Create information systems, e.g., Hypercard, expert system application.
27. Prepare a pathfinder/subject guide.
28. Design and produce a variety of audio-visual materials.
29. Apply appropriate principles to weed and inventory materials and equipment (deselect, assign to remote storage, etc.)
30. Apply proper techniques in the preservation/treatment of rare books and other materials.
31. Knowledge of computer operating systems.
32. Collection management skills (collection development, selection, deselection, preservation, etc.)
33. Assess legislation in terms of implications for libraries.
34. Knowledge of accreditation standards and issues.
35. Develop selection policies combining careful analysis of community needs and values and principles of intellectual freedom.
36. Evaluate automated systems for major library functions (circulation, acquisitions, etc.).

37. Interact with professional associations at local, state, national, and international levels.
38. Design and maintain records that document major library activities.
39. Plan for library building and facility development.
40. Apply information about the historical and theoretical background of libraries and librarians to relate to contemporary service, issues, and problems.
41. Utilize internal and external sources in long-range planning.
42. Apply effective human relations skills in group processes (committees, team efforts, supervision, etc.).
43. Communicate effectively with library boards and other governing bodies, agencies, etc.
44. Conduct an appropriate reference interview.
45. Establish technical services routines (acquisitions, processing, etc.).
46. Communicate effectively in writing reports, proposals, procedural manuals, correspondence, etc.
47. Utilize oral communication skills to make presentations.
48. Make oral presentations to user groups, governing agencies, etc.
49. Apply knowledge of marketing techniques and public relations.
50. Conduct research and publish findings in the professional literature.
51. Develop a philosophy statement that addresses the mission of the library.
52. Apply critical thinking skills to library problems.
53. Develop and maintain a budget plan.
54. Make effective use of human resources in personnel assignments.
55. Recruit, interview, and hire personnel.