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Research Activity

On the Scene

special libraries

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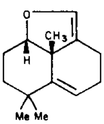

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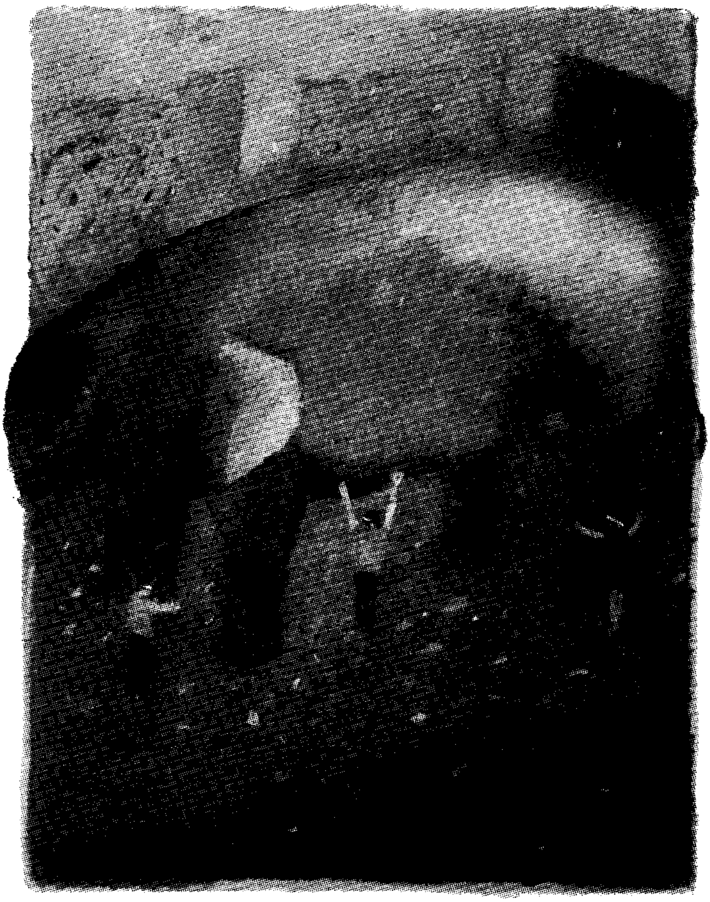

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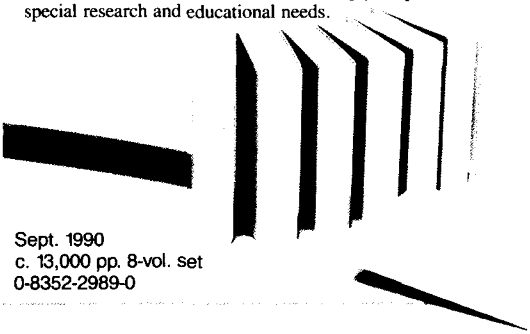

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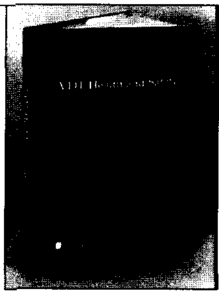
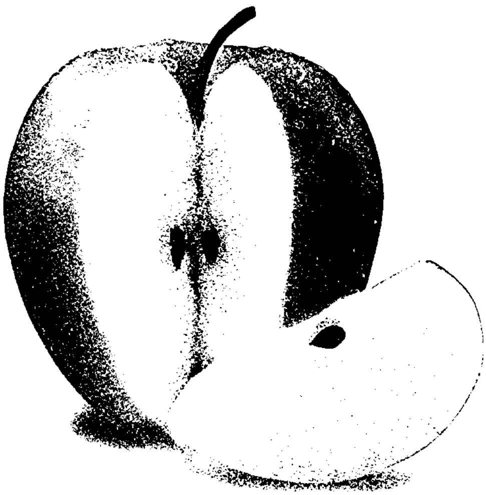




SDI Use and Productivity in the Corporate Research Environment

By Lawrence G. Mondschein

■ **The use of Selective Dissemination of Information (SDI) by basic research scientists employed by six corporate R&D facilities was surveyed to assess its relationship to research productivity. Productivity was measured by the number of papers authored or coauthored by the scientist over time. One hundred and fifty six individuals met the entrance criteria for inclusion into the study. Major findings were that over 70% of the scientists use SDI to keep abreast of new research developments, and those individuals who use the services on a regular basis appear to be more productive than their colleagues who are infrequent users, or do not subscribe to the service.**

Introduction

Selective Dissemination of Information (SDI) is a personalized current awareness service directed toward the individual user or user group by providing at regular intervals a listing of citations to newly-published papers. The primary feature distinguishing SDI from other information alerting services is the development of a unique user profile that can be readily modified as information needs change. The relationship between the use of a current awareness service, primarily SDI, by basic research scientists to R&D productivity was investigated in the corporate research environment.

Basic research can be defined as exploratory fundamental research performed for the expressed purpose of understanding some phenomena without regard to its application. Basic research contrasts to applied research in that it is directed toward a practical goal where output is measured in terms of new technology, modifications to existing products, and/or patents. Productivity, a measure of an individual's work output, was operationally defined as the number of papers authored and/or coauthored by basic research scientists while employed by the present institution over a six-year period. Number of publications was selected as the measure of research productivity because there is supporting evidence in the literature that basic research scientists are evaluated in part by the number of papers published, and there has been preliminary research conducted which report that SDI use may be related to an increase in the number of papers published.[1,2]

The idea of mechanized SDI services was introduced by Luhn at IBM in the late '50s, and received increasing attention throughout the '60s and early '70s as a method of keeping users informed about new advances that were recently published. Written accounts based primarily on the results of surveys described the development of SDI systems by researchers in a variety of disciplines. Beginning in the mid 1970s the number of publications on SDI declined as the cost of maintaining the service increased. The trend led to library management reevaluating cost versus benefit in maintaining SDI profiles. Increased expense discouraged the promotion of the service, which resulted in fewer subscribers. In the '80s SDI continued to be used by scientists who requested the service, but was not actively promoted by most information professionals. Recent topics of interest include evaluating system capabilities, building personal computer databases with SDI output, and testing computer software that can generate SDI.[3,4]

As an outgrowth of a study designed to distinguish the types of informational needs scientists have, Menzel, in 1958, introduced a taxonomy of classification of information describing the functions data play in supporting the research process.[5] Among the several functions listed, information helps scientists keep abreast of developments in their chosen areas of attention. Menzel further states that there is a close connection between the information function and the source of information that is eventually consulted.

This study takes Menzel's premise one step further by introducing the variable productivity as an output measure to quantify the interrelationship between the information function and the source consulted. It was posited that information reviewed from the sources selected by the scientist would have an impact on the individual's research productivity.

Rosenbloom and Wolek, Narin, and Allen have all compared the use of information sources and productivity among both scientists and engineers using quantitative measures. Their findings provide evidence to support the following conclusions:

- scientists and engineers use different communication sources; and
- scientists and engineers are measured on productivity by different means.[6,7,8]

The rationale behind selecting number of publications is that previous studies have shown that scientists who perform basic research eventually publish their findings.[7,8] This study proposed a model for evaluating the relationship between the use of SDI and the number of publications authored and/or coauthored by basic research scientists. The research design was based on previously published accounts, which were integrated with factors associated with the individual and his or her work environment and related to research output. Conclusions were based on the results obtained from descriptive and inferential models developed and tested in this investigation.

Methodology

Six large corporate R&D facilities located throughout the United States with libraries that provide SDI services were surveyed. The six information centers were chosen from data contained in the *Subject Directory of Special Libraries and Information Centers.* Fundamental to selecting each of the six libraries, was the reputation of the company as a highly-respected leader in research. In addition, the author tried to select companies that focused their research efforts in different areas in order to obtain a diverse population of scientists with backgrounds in the physical and life sciences.

Finally, each library selected must have had an entry in the *Subject Directory of Special Libraries and Information Centers,* which indicated they provided SDI services. Once a library was selected, and corporate management approval granted, a request was made for the librarian to identify one basic research scientist who had published and would be willing to pretest the questionnaire by commenting on the clarity of the questions.

Pretesting was done prior to the development of the final instrument by selecting one scientist from each of the six companies. The six basic research scientists were interviewed at the company location and asked to complete the questionnaire which took approximately ten minutes to finish. Researchers were encouraged to ask questions and make comments regarding the instructions, format, and contents. After completion of the questionnaire, each was given a list of names of individuals employed by the company taken from *Current Contents Address Directory* for 1984 and 1985.[9,10] They were asked to place a check mark next to the individuals whom they know conduct basic research and have been employed by the company for at least three years. A study population of 244 scientists was finally selected from the six companies.

The following outline lists the inclusion criteria for entry into this investigation:

- must conduct basic research;
- must presently work in one of the six companies selected that conduct basic research in the physical and/or life sciences;
- must have been employed by the present employer for at least three years; and

- must have published at least one paper as an author or coauthor during the past three years while employed by the present institution.

Twelve of the 244 scientists (two from each of the six companies) were then randomly selected to pilot test the revised version of the instrument. The final version was sent to the remaining 232 scientists employed by the six corporations (Appendix). The researchers were requested to return the completed questionnaire within two weeks. The return rate on the instrument was high, with 156 of the 232 subjects responding within the two-week time limit. Two follow-up questionnaires were sent to scientists who did not respond to the initial or follow-up requests, resulting in an additional number of replies which were subsequently analyzed.

A total of nine weeks elapsed from the first mailing to the receipt of the last questionnaire that was included in the data analysis. The total number of questionnaires returned, including the 12 from the pilot, was 208, for a return rate of 85.2 percent. This is based on a total of 244 questionnaires that were sent out (12 in pilot and 232 in final version).

Fifty-two subjects were excluded from the study for various reasons. Thirty-nine were not analyzed because they failed to meet the following two inclusion criteria: must conduct basic research; or be employed by the present company for at least three years. Eight individuals were eliminated because they were no longer employed by the company. Five additional subjects disqualified themselves for the following reasons:

- too busy;
- retired from R&D;
- not qualified to answer some of the questions;
- does not keep accurate records on information use; and
- no longer employed by industrial lab.

In summary, out of 208 questionnaires returned, 52 were excluded. Thus, a total of 156 scientists were found acceptable for undergoing data analysis.

Results

Once the data from the questionnaires were collected, descriptive measures were compiled for each of the variables included in the study. Information use, defined as the last time the scientist either referred to or used a communication channel, was analyzed individually for each of the 14 information sources listed on the

Table 1 **Information Sources Surveyed on the Questionnaire**

The sharing of papers and journals with colleagues	Reviewing *Current Contents*
Reviewing in-house publications and reports	Reviewing a commercially-produced bibliography covering a specific research topic
Browsing reference books and texts	Reviewing abstracts
Scanning trade publications	Scanning indices
Reviewing patents	Attending conferences
Reading review articles	Informal meetings with colleagues
Browsing journals	
Reviewing a personalized computer-generated listing of citations to recent publications in one's research field	

questionnaire (Table 1). For example, SDI use, "reviewing a personalized computer-generated listing of citations to recent publications in one's research field," was measured by the number of days since the scientist last reviewed an SDI printout. If the response was "0," it would be

Table 2 **Summary of Descriptive Statistics Information Sources Consulted and Productivity**

Category/Variable	Mean (no. days)	Median	Standard Deviation	Range Floor	Range Ceiling	No. N/A Responses (n=156)
Information Source						
Last time a conference was attended	68.6	30	89.0	0	501	6
Last time informal meeting took place	1.5	1	1.8	0	10	2
Last time a journal was reviewed	5.0	2	8.1	0	60	6
Last time papers and journals were shared with colleagues	8.3	2	33.6	0	365	7
Last time in-house publications were reviewed	10.9	4	19.9	0	120	11
Last time a book or text was reviewed	18.4	7	42.5	0	405	11
Last time a trade journal was reviewed	25.1	5	66.1	0	500	37
Last time patent information was reviewed	57.5	17.5	114.6	0	730	54
Last time a review article was read	15.0	7	20.8	0	100	6
Last time SDI information was reviewed	31.1	7	56.6	0	301	44
Last time *Current Contents* was reviewed	74.1	10	168.3	0	1000	85
Last time a commerically produced bibliographic information source was used	45.1	12	86.9	1	400	58
Last time an abstract was reviewed	19.2	5	42.9	0	400	22
Last time an index was reviewed	34.1	10	66.2	0	500	64
Productivity						
Number of papers published during past six years	28.3	20	28.3	1	205	—

interpreted that the service was last used "today." If the scientist was unaware of the service, or did not use it, the correct response would be "N/A." Descriptive statistics on the 14 information sources as well as the number of papers published, are in Table 2.

Based on the descriptive statistics, several interesting findings were made apparent from the number of "N/A" responses. First, regarding the use of SDI, 72% of the scientists who responded to the questionnaire stated that they use the service. Their responses are in stark contrast with the results for *Current Contents* where only 46% of the respondents indicated they use the service and of that 46%, the median frequency of use is once every 10 days. This finding was surprising due to the fact that *Current Contents,* a weekly publication of the Institute for Scientific Information (ISI), is publicized much more than their SDI service, *Automated Subject Citation Alert* (ASCA). A majority of the scientists surveyed (97%) claim to keep abreast of new research developments by reading review articles. Based on interviews conducted during the pretest phase of the study, scientists reported that they found review articles invaluable at summarizing major research findings where they could easily screen for content, significance, and then decide what papers to obtain as reprints.

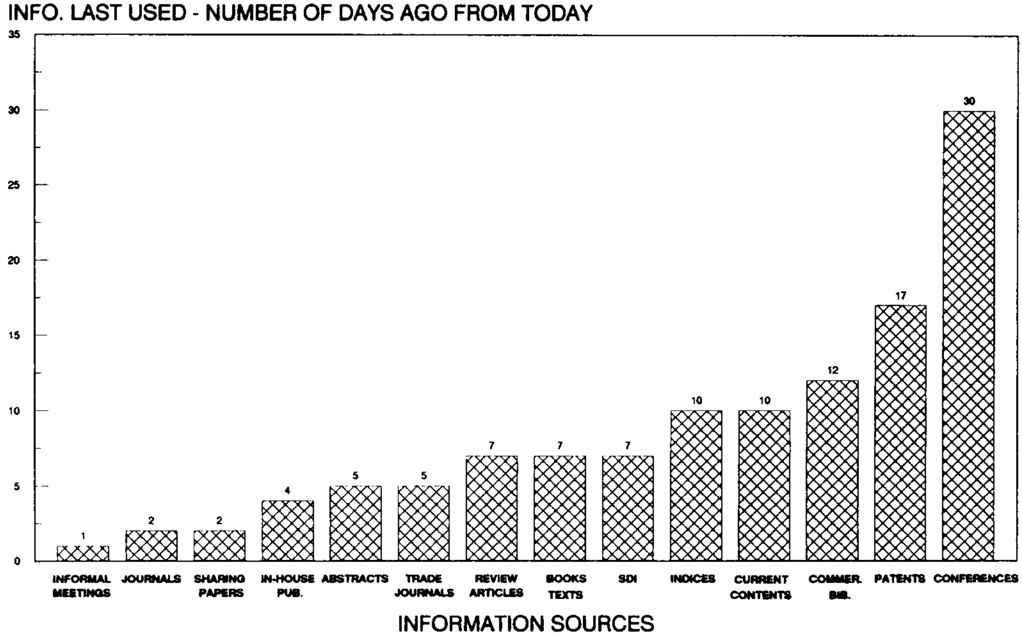
The use of patent information by 56% of the scientists was unexpected because, based on the literature, basic research scientists tend to overlook information sources where the emphasis is on technological advances or modifications to existing applications found by reading patents and scanning trade journals.[8] One possible reason that this was not the case, at least with patents, is that this study was done in an industrial environment with scientists, who, although they are committed to research, must keep abreast of new technologies that eventually will play a role in the overall success and profitability of the corporation. The situation is not the same in academia where there appears to be more freedom for basic researchers to pursue fundamental work without the pressure to get results which, within a specified period of time, must progress from the laboratory to the marketplace.

For all the information use variables, the standard deviation is higher than the mean, which would lead to the conclusion that there is a considerable amount of dispersion due to the large spread of scores. Thus, the mean should be reviewed with caution due to the effect of outliers on the average score. The median may possibly be a better indicator of the nature of information use than the mean. The median, which is also a measure of central tendency, is the point below which half the scores fall. When used in conjunction with the mean and standard deviation, the median may provide the analyst with a better understanding of the variable.

Figure 1 summarizes information use for each of the 14 information sources listed on the questionnaire. According to the median scores, informal meetings with colleagues, reading journals, and sharing papers are utilized most frequently by basic research scientists to keep abreast of new research developments. Review articles, books and texts, and SDI appear to have the same frequency of use—once every 7 days—while attending conferences has the highest median score of once every 30 days.

Multiple regression analysis was used to test the relationship among various conceptual areas believed to be related to productivity. The multivariate sequencing method for model building was based on a technique developed by O'Connor.[11] It was postulated that in addition to the information use variables, the background characteristics of the scientist, the environment where he or she is working, as well as the need to keep abreast of new research developments, will result in the selection and use of a combination of primary and secondary information sources. These conceptual areas may be considered as the foundation for knowledge production represented by the number of papers published by the scientist (figure 2). The regression model was successful in explaining 36% of the variance in productivity. The percentage of variance for which each predictor variable was able to account after overlap ranged from 1% (keeping abreast of new research developments) to 15% (interactive variable—overall benefit in utilizing a variety of information channels and company affiliation). Background characteristics—number of years employed by the research team—account for 5% of the variance; environmental characteristics—number of pro-

Figure 1 Summary of Information Sources Used by Basic Research Scientists



ALL CALCULATIONS ARE BASED ON THE MEDIAN SCORE.

Figure 2 Fundamental Criteria to be Analyzed When Evaluating the Relationships Between Current Awareness Use on Productivity

BACKGROUND CHARACTERISTICS . . +	ENVIRONMENT . . . . . . +	INFORMATION FUNCTION . . . +	SOURCE(S) CONSULTED . . . .RELATIONSHIP TO . .	PRODUCTIVITY
* Percentage of time spent conducting basic research	* Perception as to the benefit in utilizing information from various communication channels	* Current Awareness Function (Keeping abreast of new research developments)	* Information last utilized	* Number of Publications
* Number of years seniority at present institution	* Company affiliation		* Effort last made to obtain primary information source	
* Length of time as member of present research team				

fessional employees reporting to the basic research scientist, overall benefit in using information sources, and company affiliation—account for 18% of the variance in number of papers published. The conceptual area, information function—keeping abreast of new research developments, was only able to account for 1% of the variability.

The four information sources found to be related to productivity were review of SDI printouts, reading books and texts, informal meetings with colleagues, and attending conferences. The total variance accounted for by the information sources was 12%. The other 10 information sources screened were not found to be statistically significant in explaining the variability in productivity when included in the regression equation.

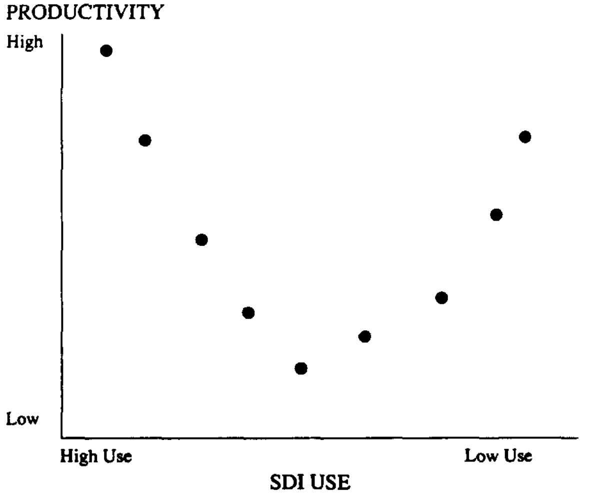
Figure 3 illustrates the predicted second order curve achieved through data transformation of the variable SDI use. Based on the shape of the curve, subjects who use SDI frequently or who use it rarely or not at all appear to be very productive. There is also evidence to support the conclusion that productivity is higher for those who use SDI regularly than for those individuals who claim to use SDI rarely or not at all. The number of days since SDI was reviewed was assigned a rank order number. The lowest score was assigned to those scientists who responded that the last time they reviewed an SDI printout was "today," while researchers who indicated that they review SDI on a less frequent basis were assigned a *higher* ranked score. The very *highest* score was assigned to individuals who do not presently use SDI as a current awareness source. Based on the curvilinear relationship, the subjects who are predicted to have the lowest productivity are those using the service on a limited basis.

Discussion

In this study, the research question posed was the following: which productivity patterns are exhibited by scientists who make use of SDI compared to those colleagues who do not subscribe to or are infrequent users of the service? Based on the results obtained, there appears to be a relationship between increased use of SDI and productivity among basic research scientists.

It may be hypothesized after reviewing the

Figure 3 **SDI Use and Productivity**



Predicted Curve - 2nd Order (quadratic) equation descriptive statistics and the shape of the predicted curve for the plot of SDI use versus productivity, that scientists who are most productive are likely to scan SDI printouts on a daily basis, while those who are not productive may refer to an SDI printout on average of once every few months. It seems likely that those individuals who use SDI on a daily basis probably have several SDI profiles running concurrently, which are received at different times during the month. This assumption is based on the fact that SDI printouts are usually generated once every two weeks to once a month, depending on the database being searched. Otherwise, frequent use may be attributed to the number of citations retrieved.

Depending on the number of citations, it may take the scientist several days to carefully review the printout before making a decision whether to make the effort to obtain a reprint of the entire paper. Because the service comes out on a regular basis, an individual who reviews SDI once every few months is not getting the maximum benefit from the service. The possibility of this pattern being an indicator that other sources are used to counteract this less than optimal use of SDI will be discussed, but it appears that scientists who do not use the service regularly as the information becomes available are not publishing as many papers as their colleagues. Although the number of research scientists who use SDI is high at 71%, the recency of use varies tremendously, ranging from the day of response, to 301 days ago. Based on the results, a mean of 31.1 with a median of 7 days was calculated.

Results of multiple regression analysis show that frequent use of SDI does appear to have a definite positive relationship to increasing productivity, even though scientists who do not use SDI at all also appear to be productive, but not to the same degree as those who use the service.

In order to understand how the use of SDI is related to productivity, the patterns of information used in conjunction with SDI need to be reviewed.[12] A combination of primary and secondary information sources have been found to be important in explaining the variability in SDI use. Information sources that show increased frequency of use when SDI use is high are patents, abstracts, and commercially produced bibliographic information sources.[13] For those individuals not using SDI, further investigations are needed to identify the information channels used for such a scientist to help support their research efforts. It is assumed that there are equal efforts made to inform and educate scientists on what information sources are available.

The fact that over 70% of the scientists in this study use SDI does provide evidence that at corporations investing in research, SDI is used by a majority of their research staff. The effort should be made to inform middle-level management (e.g., group leaders, section heads), as well as the entire research staff, of the benefits derived by using a variety of information sources to keep abreast of new research developments. For those individuals who are high users of various sources, the presentation of the findings from this study should reaffirm their commitment to an activity where there is a definite relationship in increased productivity.

For those who are infrequent users of information sources, or who are unaware of one or more services offered by the library, this is the opportunity for educating the individual on what is available. Based on patterns of information use, scientists who are infrequent users of SDI in many instances show similar patterns in their use of other published information sources.

Although evidence strongly suggests that scientists who are regular users of SDI were more productive than a majority of their colleagues, other factors were also important: background characteristics of the individual, work environment, and perceptions as to the benefit of using various information sources to keep current. There are scientists who are exceptions in that they are highly productive, but are infrequent users of information sources. In such cases, however, other factors keep them informed and contribute to their productivity, e.g., number of years on a particular research team. For those individuals who have been with the company for a long period of time, it is not likely that one could change their information-use habits at this point in their careers. These individuals probably get much of their information by attending conferences and meetings and through close contact with colleagues with very similar research interests, e.g., invisible college or social circles.[14,15]

It was found that many scientists directly benefit from information services available from the library, especially individuals who recently joined companies that had orientation sessions on the library's current awareness programs. Such programs are an appropriate forum to inform scientists on the benefits of SDI. As an individual's research changes, or the topic under review broadens or takes on a new direction, the information professional must be made aware of the change in order to make the necessary modifications to the user's profile. Unfortunately, in a majority of instances the scientist must take the initiative by making a request that the SDI profile be updated.

It is the author's belief, based on interviews conducted with scientists during the pretest phase of this study, that when an SDI service begins retrieving irrelevant information, the scientist usually requests the service be curtailed, or he or she simply stops reviewing the printouts. To help resolve this major problem, there needs to be an effort by the staff of the information center to keep track of SDI profile updating. Also, there should be regular follow-up with all patrons who have recently obtained new SDI profiles to insure that the information they receive is meeting their research needs. Records should also be kept on requests for reprints of full papers based on the SDI printout.

Afterwards, at six-month intervals, records of the number of requests for reprints should be reviewed to note patterns of use. A slackening off of reprint requests may signal that the profile is no longer meeting the needs of the scientist. Finally, once a year the information professional should take the initiative by arranging a meeting with the scientist who subscribes to an SDI service to discuss how successful the scientist's profile is at capturing relevant citations. An honest dialogue may lead to the suggestion to modify the user profile, try a different online database, and/or supplement the present service with another current awareness source. This will, it is hoped, lead to a more effective utilization of information sources by the scientist as well as improve the level of services provided by the library.

Future Trends in SDI Utilization

The use of SDI in the corporate research environment will change dramatically during the 1990s. The driving force will focus on new developments in information technology, which will alter the way current awareness information is provided. During the past few years, simple-to-use front end software packages have enjoyed widespread popularity. Library staff can now perform multiple searches on downloaded files without the associated high online charges.

Because the simplicity of use, and more importantly, the minimal cost involved, the end user will take on an increasingly important role in developing his or her own SDI profile. The librarian will assist in creating the user profile by suggesting keywords and the appropriate bibliographic files to be downloaded. The user will be responsible for downloading new information on a regular basis, running his or her user profile against the bibliographic files, examining the citations, and requesting full-text copies on items of particular interest. The advantage of this approach is the scientist is directly involved in the search and retrieval process. The patron also has the responsibility for making the necessary modifications to the user profile in order to increase recall or precision.

By the end of the decade, online bibliographic sources will be replaced by optical disk technology. CD-ROM promises to be the mass storage medium of choice. As the cost of creating information on an optical disk decreases, new applications will be tested. Weekly updates to bibliographic files on CD-ROM that are matched against a user profile, will be a method of providing SDI services. What may take longer, but will enhance the service, is having the full-text paper also available on the same or accompanying CD-ROM. Thus, one of the major drawbacks with SDI, expediting document delivery, will be eliminated. The scientist can run his or her profile, review citations, select references of interest, and then retrieve the full text in a matter of minutes.

In conclusion, SDI along with other current awareness services will continue to be used by scientists in a corporate research environment. However, librarians must make the deliberate effort to educate research personnel on the benefits of SDI, or the use of this service will not improve. Other current awareness services are directly marketed by vendors to the scientist, SDI is usually not. The librarian's task of informing patrons on available information sources is of utmost importance. It would be advantageous for the librarian to be the first to introduce research personnel to advancements in information retrieval and document delivery rather than the MIS department.

In the future. requests for current awareness information will require the intervention of the librarian, to advise on the appropriate bibliographic files, assist with the development of the user profile, and suggest other primary and secondary information sources. Similar to the way Luhn tested the feasibility of a mechanized SDI service in the late '50s, we are now about to take another important step in the field of scientific communication. We are entering an era where current awareness information will be managed by emerging technologies that will change the way information is handled, and will open the door to new and promising opportunities for future growth in the 1990s. ■

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The author would like to thank the following members of his dissertation committee at Rutgers University whose efforts contributed to the success of this research investigation: Dr. James D. Anderson, Chairman, Dr. Daniel O. O'Connor, Dr. Pamela Spence Richards, and Dr. Michael E.D. Koenig, Dean, Graduate School of Library and Information Science at Rosary College, and formerly on the faculty at Columbia University.

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Appendix

Name:

1. Date questionnaire completed ________________

2. Date hired at present institution (month) _______ (year) _______

3. Highest degree attained _____________

   Discipline ____

4. Do you conduct basic research? ______ Yes ______ No

   IF YES....

   What percentage of your time is spent during a normal work week conducting basic research? ___________

5. How many scientific (professional) employees do you directly supervise? ____________

6. How long have you been a member of your present research team? ________________

7. Approximately how many hours per week do you spend doing the following:

<u>ACTIVITY</u>	<u>HOURS PER WEEK</u>
Conducting research	________
Administrative tasks	________
Keeping abreast of new research developments	________
Attending conferences	________
Meetings with colleagues	________

8. Please check the appropriate column indicating the benefit to you in utilizing the following means of obtaining information.

Scale

ACTIVITY	NO BENEFIT	SLIGHT BENEFIT	BENEFICIAL	HIGHLY BENEFICIAL	DOES NOT APPLY
Sharing of papers and journals with colleagues	____: ____: ____: ____: ____: ____: ____				___
Reviewing a personalized computer generated listing of citations to recent publications in ones's research field	____: ____: ____: ____: ____: ____: ____				___
Browsing journals	____: ____: ____: ____: ____: ____: ____				___
Reviewing in-house publications	____: ____: ____: ____: ____: ____: ____				___
Reading review articles	____: ____: ____: ____: ____: ____: ____				___
Browsing reference books and texts	____: ____: ____: ____: ____: ____: ____				___
Scanning trade publications	____: ____: ____: ____: ____: ____: ____				___
Reviewing a commercially produced bibliography on a specific topic	____: ____: ____: ____: ____: ____: ____				___
Reviewing *Current Contents*	____: ____: ____: ____: ____: ____: ____				___
Reviewing patents	____: ____: ____: ____: ____: ____: ____				___
Attending conferences	____: ____: ____: ____: ____: ____: ____				___
Informal meetings with colleagues	____: ____: ____: ____: ____: ____: ____				___
Scanning indexes	____: ____: ____: ____: ____: ____: ____				___
Reviewing abstracts	____: ____: ____: ____: ____: ____: ____				___

9. For each of the following means of obtaining information please indicate when was the last time it was used (<u>number of days ago from today</u>). For methods of obtaining information that you do not presently use, or are unaware of, please write on the line "N/A".

<u>ACTIVITY</u>	NUMBER OF DAYS <u>AGO FROM TODAY</u>
Reviewing a personalized computer generated listing of citations to recent publications in one's research field	________________
Reviewing in-house publications and reports	________________
Reviewing a commercially produced bibliography covering a specific research topic	________________
Reviewing <u>Current Contents</u>	________________
The sharing of papers and journals with fellow colleagues	________________
Browsing journals	________________
Reading review articles	________________
Browsing reference books and texts	________________
Reviewing abstracts	________________
Scanning indexes	________________
Reviewing patents	________________
Scanning Trade Publications	________________
Attending conferences	________________
Informal meetings with colleagues	________________

10. For each activity listed below, when was the effort last made to try to obtain a reprint of: 1) the paper cited; or 2) a related manuscript (number of days ago from today). For methods of obtaining information that you do not presently use, or are unaware of, please write on the line "N/A".

ACTIVITY	NUMBER OF DAYS AGO FROM TODAY
Reviewing a personalized computer generated listing of citations to recent publications in one's research field	______
Reviewing in-house publications and reports	______
Reviewing a commercially produced bibliography covering a specific research topic	______
Reviewing Current Contents	______
The sharing of papers and journals with fellow colleagues	______
Browsing journals	______
Reading review articles	______
Browsing reference books and texts	______
Reviewing abstracts	______
Scanning indexes	______
Reviewing patents	______
Scanning Trade Publications	______
Attending conferences	______
Informal meetings with colleagues	______

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11. Please provide in the spaces below the number of publications you have written per year since 1982 as an author or coauthor (this includes books, chapters in books, conference proceedings, technical reports, review articles, and abstracts). Please do not leave any spaces blank.

NUMBER OF PUBLICATIONS

1982	1983	1984	1985	1986	1987
____	____	____	____	____	____

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A Management Survey as the Critical Imperative for a New Special Library

by Marion Paris

■ It is a given that the support of higher management is necessary for the adequate financing, staffing, and ultimately the survival, of the corporate special library. What became clear in the course of a library centralization effort at a large telecommunications company is that the support of middle management is also critical, especially when the library is in a formative stage. This paper describes a situation in which certain middle managers balked at giving up their library collections until a survey confirmed sufficient backing for centralized library services.

At a time when discussions of CD-ROM databases and other high-technology tools and applications appear frequently in the pages of *Special Libraries*, it is easy to overlook the fact that many so-called knowledge workers neither have access to, nor are even aware of, basic reference materials and hard-copy indexes. When many special libraries have become "information centers" and librarians aspire to such titles as "information manager," "knowledge counselor," or "information czar," it is just as easy to overlook the fact that today, on the organization charts of many well-known publicly-held corporations, there exists neither a title nor a function providing the services resembling those furnished by a special librarian, traditional or otherwise.

To use Spaulding's analogy, many white-collar professionals are still unable to comprehend the value of a piece of yarn, much less its power, after it has been gathered up and wound upon a spindle.[1] Similarly, as White has asserted, the would-be users of special libraries barely know what it is that they do not know.[2]

Some organizations are in transition, however. Whereas their managers have not yet created facilities and positions for libraries, they have recognized the need for them. The organization in question, a large telecommunications company located in the southeastern United States, did not have a library until a year ago. Although higher management was unable to quantify what the absence of a library had cost the company in dollar amounts, executives were aware that information transfer was becoming a financial liability. They anticipated that some of the cost—expenditures for time lost while searching for information, duplicating materials, and uneconomical use of online services by untrained personnel, for example—could be contained by establishing a library.

The Company

Founded in 1984 at the time of the AT&T divestiture, the company employs approximately 2,000 people providing technical assistance to regional operating units in a nine-state area. Rich in staff, the organization conducted business from a number of sites in and around the downtown sector of a city whose population approaches 300,000 people. In late 1987 plans were well underway for a move to new suburban quarters. Nearing completion, the new facility would make it possible for almost all of the employees to work for the first time in the same complex. Centralization was likely to provide an opportunity for improved decision-making of all kinds. Reorganization and consolidation of a number of disparate activities, including information provision, was slated to occur.

Management had acknowledged that its professional and technical staff depend heavily upon the printed word; documentation and information are vital to the support the company provides its regional operating units, ultimately determining the nature, quality, and variety of telecommunications service delivered to consumers in the Southeast.

Management's plan for a centralized information function was an idea that has a solid foundation in the literature of organizational design. Galbraith's Information Processing Model has been widely employed since the late 1960s. Coordinating, goal-setting, and standardization of procedures, Galbraith has written, are necessary activities in which complex organizations should engage. Complex organizations are extremely susceptible to information overload caused by conditions of uncertainty; those organizations simply cannot process all of the information required at the appropriate levels of decision-making. Galbraith states:

> "The volume of information processing can overwhelm an organization... The organization must adopt a strategy to either reduce the information necessary to coordinate its activities or increase its capacity to process information."[3]

One means of increasing the capacity to process information is the investment in vertical information systems which aid in the collection and direction of information to those who require it. Although Galbraith does not identify library service as a vertical information system, it is a natural extension of the model and may be regarded in such a manner.

The Paradigm vs. the Real World

Students enrolled in the typical special libraries course learn when an organization is ready for a library. Ahrensfeld and Christianson's indicators have become an important paradigm in the education of special librarians *and* corporate managers. Those include one or more of the following conditions:

- Funds being used to buy multiple copies, properly centralized and controlled, would better serve the needs of all;
- Extensive and expensive collections of books, magazines, reports, services, and other materials are scattered around the offices;
- Despite the accumulation of publications, the needed ones cannot be found;
- Each day the mail brings more free information, notices of publications, etc., and no one can take the time to screen them for their potential value or determine which are best suited to the needs of the organization;
- Managers and employees are aware that they are not doing the reading necessary to keep up with developments in their fields;
- Employees are spending a good deal of time trying to track down information, thus diminishing the time they have to spend applying the information—if they find it—to their work;
- An important decision must be delayed because of lack of correct information....;
- Management begins asking itself if some of the research being undertaken by its personnel might have already been done elsewhere...;
- The organization is unable to take advantage of prior internal research....[4]

At the company in question, more than a dozen small departmental book collections (the exact number has never been determined), all of which were located within one square mile of one another—several on different floors of the same high-rise buildings—had spontaneously evolved. Only two of the libraries were staffed; one by a college graduate without library experience and the other by a school media specialist who had been retained on a part-time, temporary basis to organize a collection used by one of the many marketing groups. Several of the libraries amounted to what formerly had been closets, housing haphazardly arranged but extremely expensive materials. Untrained end-users were buying online searching time in record amounts, unaware of the benefits a professional searcher could realize by harnessing a potentially powerful force for them.

The collections duplicated one another to an extraordinary degree, a situation which could be explained both by the extensive decentralization of personnel into self-contained groups headed by strong middle managers, and in the absence of any control, a desire on the part of some groups to carefully guard and protect their own specialized materials. Such duplication was both costly and wasteful. The collections were ill-maintained, and some of the materials had long been superseded by newer editions. Moreover, the libraries were under-utilized; it was later determined that few employees were aware the libraries existed.

Despite the support of top management for more than a year, the establishment of the centralized library was an economic decision long before it became a politically popular one. Whereas special libraries often develop in "bottom-up" fashion as consolidations of related departments, (the amalgamation of such functions as research, records, archives, and book collections is not uncommon, for example) this library began with a suggestion from the top. Yet management fiat alone does not create a corporate library.

White and Matarazzo have written persuasively about the effects of political processes on the livelihood of special libraries; the former in terms of competition for scarce resources and the latter in terms of special libraries' very survival in straitened circumstances.[5, 6] Matarazzo's notion of "prime movers," managers who understand the need for a library and who will support it by word and by deed, has entered the canon of special library management.[7] Kiechel, writing in a 1988 *Fortune* piece on the pitfalls of business innovation, echoes Matarazzo.

> "Top management should help (those charged with a new project) find support anywhere they can in the organization. A good sponsor high up may be crucial: He (sic) can locate resources, run political interference..."[8]

Political Interference

A consultant was engaged to determine appropriate goals and objectives for the library, establish initial programs and services, work with in-house space planners, and advise on the hiring of a qualified librarian and at least two support staff members. One of the consultant's first tasks as the eyes and ears of top management was to conduct face-to-face interviews with middle managers. Topics discussed included the status of the mangers' existing book collections—organized or otherwise; present and future information needs of professional and technical staff, information-gathering practices currently engaged in, if any, and the managers' views concerning centralized library services.

A 1989 *Wall Street Journal* article cited the high degree of "intrapreneurship" flourishing within the divested AT&T companies, a phenomenon which may help at least partially to explain what then transpired.[9] Some of the middle managers, reluctant to see "their" books and periodicals removed elsewhere, regardless of how out-of-date or poorly organized those materials were, vigorously opposed library centralization. It is possible that such opposition to centralization reflects an intra-organizational competitive spirit within the "Baby Bells." It seemed for a time that the centralization plan would be terminated. An all-too-familiar turf battle might have derailed it permanently.

The next step took the form of a paper-and-pencil survey, designed to evaluate how much grass-roots support actually existed for the plan of centralization. After it had been tested on a small pilot group, the instrument was distributed to a target population of 300 middle managers randomly selected from the employee database and it was accompanied by a cover letter signed by an administrative manager. Because the questionnaire has become the property of the client corporation, it is not included here.

One hundred forty-four questionnaires were returned for a response rate of 48 percent. Seventy-three or 51 percent of the respondents identified themselves as library users, and 71 or 49 percent labeled themselves as non-users. Because of reporting deadlines and limited availability of the data obtained, which also became the property of the client, the consultant was able to perform only a rudimentary analysis of the results of the survey. Questions about such a comparatively low response rate beg to be asked. Did the low profile of library service in the company, in addition to minimal or nonexistent expectations, contribute to the fact that only 48 percent of those managers surveyed responded?

Respondent Support

Of the 73 respondents who had used a library or libraries (in the clear majority of cases most had used only one), approximately one-third reported that they had become aware of the existence of the libraries through a co-worker; another third had discovered the libraries by means of library promotional material which had originated from a sister company 250 miles away. Only 19 of those who claimed to be library users indicated that a library had ever had a significant impact on how they perform their jobs. Users overwhelmingly favored centralization, however, and their comments provided rich insight into a widespread need for improved library programs and services.[10]

Lack of awareness of the company's book collections would appear to have been the primary reason why 45 of the 71 non-users had not become users. In fact, a number of those respondents admitted that the questionnaire had introduced them to the existence of the libraries for the very first time. Fifty-nine percent of the non-users also agreed that the libraries should be centralized. Their comments included speculation that many more people would use the libraries if they were staffed, well-organized, and conveniently located. Many non-users failed to respond to the open-ended question about centralization, perhaps because of a lack of interest or belief in the value of library service.[11]

Respondents' comments, a sampling of which appears below, provided the most compelling support for a centralized library.

USER: "I think a well-stocked library is important to employee professional and personal development."

USER: "I think the company should have a first-class corporate library that is managed and operated in a first-class, professional manner."

USER: "In the case of our library, there has never been a person designated to maintain the files. This has led to misplaced documents and disorder."

USER: "[a marketing library] is not kept current, and you can't find what you want."

USER: "There are probably many departmental reports that could be of use to various people in other departments"

USER: "It would be nice to go to once location for all materials."

NON-USER: "Where are these libraries? Where can I get more information? Will they be available in the new building?"

NON-USER: "Why not have an online library accessible by the terminal on my desk?"

NON-USER: "Consolidating would be more efficient and cost-effective."

NON-USER: "Only found out [about the libraries] from this survey. Centralize? Yes!!!

NON-USER: (Is there a library in the data center?) Still don't know where the libraries are or what they have."

finally, from another non-user, "Now that I know about the libraries, I'll check them out and use them."[12]

Conclusion

Barriers to centralization fell quickly. In early 1988, management made a final, official decision to centralize library services in the new suburban complex. A highly qualified librarian now attempts to answer the next question once posed by John Kok in a memorable *Special Libraries* piece by the same title: "Now that I'm in charge, what do I do?"[13]

■

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Environmental Scanning and the Information Manager

by James Newsome and
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■ Environmental scanning is a key trend analysis tool to help organizations plan and respond to external forces in times of rapid change. The process involves a scanning team monitoring the environment to identify hazards and opportunities that might impact an organization. The staff of a special library can play an important role in the process since the library is a natural gathering place for new information. Environmental scanning is a method to expand the librarian's service by becoming active in a lively process that can assist strategic planners, product developers, and policy analysts.

The past 20 years have seen accelerating rates of change, in both the internal and external environments within which organizations operate. But increasingly, forces in the outside world have a greater impact on the future of an organization than internal issues. An idea or strategy which seems sound today may not work tomorrow. Consequently, the traditional status quo management methods for running a successful business or agency frequently fail to produce positive results, as they once did. An organization exists within an environment where surprises are constantly increasing and the need for strategic planning becomes imperative. A key tool that can help an organization survive rapid change is environmental scanning (also known as issues scanning or issues management), a process now being carried out at a large number of corporations, many governmental agencies, and nonprofit organizations. The library or information center in an organization, as the gathering place for information, is the logical location for an environmental scanning program. The information manager should be a part of the scanning team.

What is Environmental Scanning?

Environmental scanning has been defined as a "methodology for coping with external social, economic, and technological issues that may be difficult to observe or predict but that cannot be ignored and will not go away."[1] Another scanner has described the process as "an early warning system that assembles and analyzes information concerning external forces, events, and relationships and their impact on the present and future strategies of an organization."[2] In simple terms, environmental scanning is a way of identifying hazards or opportunities in the outside world that may impact the organization.

The most common technique used by scanners is systematic watching for emerging issues or trends in publications, at conferences, from colleagues, competitors or other sources. Scanning also involves setting up a system to chart and analyze their possible impacts.

History

Environmental scanning emerged in many places at once in the late 1960s and early 1970s. Insurance companies were among the first to embrace scanning. In the 1960s insurance companies expected that with increasing numbers of baby boomers marrying—one time in life when whole life insurance is traditionally purchased—an industry-wide increase in sales could be expected. This was the way things had always worked. When the opposite happened and sales actually decreased, the industry suffered greatly. What the insurance industry had failed to predict was that as families increasingly became two-income rather than one-income units, the need to protect a spouse against the other earner's income loss at death was not seen as essential. A new pattern had emerged. Thus, less whole-life insurance was purchased. The troubled industry decided not to be caught off guard again and insurers established environmental scanning as a major planning tool. Others, such as General Electric, Sears, and Motorola developed scanning departments or committees at the same time. Nonprofits followed, and there is now a large literature on the intricacies and varieties of ways to scan.[3]

The Environmental Scanning Model

The environmental scanning model contains nine components: 1) selecting the people to be the scanning team; 2) selecting the resources to regularly scan; 3) choosing the criteria by which to scan; 4) scanning the selected resources while staying open to other information sources; 5) identifying signals that forecast potential new issues; 6) selecting the *key* events, issues, and trends discovered; 7) monitoring and analyzing the events, issues, and trends for further developments; 8) disseminating the information scanned and analyzed; and 9) deciding upon the appropriate organizational responses (often outside the parameters of the scanning group).

Selecting the Scanning Team

Usually, a group or committee forms a scanning team which divides up information resources with each member responsible for watching a certain number of magazines, newspapers, and other information sources. The optimum size for a committee has been estimated at roughly 8–10 people, although conditions may vary, and there is no definite/official rule.[4] The scanning committee should contain members from throughout an organization who are comfortable with reading and discussion and who can see beyond their own jobs. It is imperative that the committee be supported by top-level management who will give the committee time to spot trends, and who will act on committee findings. A lead scanner/coordinator should be appointed. The scanner/coordinator is essential to the success of scanning, and should have a curious and active mind.

John Stoffels emphasizes divergence as the most appropriate style of thinking for scanners, where thought *broadens* from a point of focus instead of *narrowing* to a point of focus. As environmental scanners, she says, "we start from a known position and use facts and data to develop questions, not answers, and problems, not solutions; we are charged to think divergently."[5] In other words, scanners are not trying to solve crises, but are trying to anticipate them. The scanning group should meet regularly to discuss members' findings, and should include people able to work with uncertainties, and those who enjoy asking the question "what if."

Selecting the Resources to Scan

To be successful, a scanning program needs to use a variety of printed materials. Events and trends tend to first appear in diverse places. Most groups select several national newspapers like the *New York Times*, the *Washington Post*, the *Wall Street Journal*, or *USA Today*. Magazines that explore the future, like the *Futurist*, are extremely useful, as are journals that review the alternative press. Two examples, *The Utne Reader* and *The Whole Earth Review*, are often scanned for their leading edge trend-spotting. Several scanners recommend the cartoons in the *New Yorker* which often highlight social changes at an early stage.[6] Magazines from the area of concentration of the organization should be included. If, for example, the organization is a transportation company, then transportation news publications should be scanned. But the first sign of a change that will impact transportation may appear in an *American Demographics* article about suburban homebuying patterns, or an article in *Technology Review* about computerized grocery shopping from home. Also, select a few "wild-card" type publications like *Vital Speeches* or *Seventeen*. Remember, the wider the variety of resources scanned, the broader the possibilities for spotting trends. Not all of the publications will necessarily need to be purchased by the organization. Home subscriptions and public library collections can often be utilized. Of course, an issue might be spotted by a committee member in an ad seen while on vacation in Europe, or be overheard on an airplane. But there should be regularly scanned resources. With experience, the team will be able to discover the appropriate number of resources it can handle.

Choosing the Criteria by Which to Scan

There are three basic levels of scanning. The lowest level is the passive scanning that we all do in order to keep abreast of what is happening in the world. If we read in the morning's paper that a new cure for baldness has been discovered and it is cheap and safe, and we are bald, we may begin planning for a change in our life. Information from this type of scanning is haphazard.

At a second level we begin scanning the external environment actively. A committee sets up broad categories to help sort out the glut of information discovered. One scanning model divides the external environment into the "Political/Governmental," "Social," "Economic," and "Technological."[7] When we find a new issue or trend we place it in the appropriate subset. In this way the committee soon has a set of economic issues, events, and trends to analyze.

At the third level, a particular issue is scanned in a directed way. Members of the team are asked to keep a lookout for anything they can find on that trend, or new countervailing ideas. A data-base search may be carried out and various current awareness (SDI) operations put into effect. Over time, a scanning group will usually be doing some scanning at all three levels. The key is to meet regularly, structure efforts, and develop a focus to the scanning.

Each committee will develop its own areas to watch with particular attention. A toy company will be likely to scan Saturday morning cartoons and best-selling books on parenting to spot emerging issues, while a state department of natural resources will not.

Scanning the Resources

The mechanics of scanning publications is relatively simple. Nobody has the time or the energy to read all of the articles in assigned journals. A good beginning is to quickly scan tables of contents, abstracts, headlines, captions, and advertisements. When something seems potentially relevant, it should be looked at more closely. There is danger in getting engrossed in the reading of every interesting article found; consequently, over time, not enough ground will be covered and burn-out may occur.

Selecting the Key Events, Issues, and Trends

What are the relevant issues and trends we're seeking? Generally, scanners look for events that are early warning signals of changes to come, or for trends that are just beginning (or that the scanners perceive may be about to begin). They are particularly interested in emerging issues whose impact upon their organization can be influenced in a positive direction by early detection. It is best for committee members to be risk-takers and search for possibilities rather than probabilities. If, for example, a trend has only a slight chance of developing, but if by its happening the impact on the organization will be profound, it becomes essential to report the signals that the trend may occur.

Scanning seeks external changes and new patterns: the interesting future that is not certain or obvious but for which it is possible to plan options. Ann Pflaum, a leading scanner, states that,"events have a predictable pattern that allows a trained observer to identify issues early in a cycle. The issue cycle begins with isolated events, proceeds to a convergence of opinion... then the issue begins to subside."[8]

Environmental scanning seeks to find the issues early in the cycle. For example, a large corporation may move its headquarters from a city center to a suburban area. This may be an early signal that a trend towards white-collar commuting to work in the suburbs will occur. If this happens, traffic flow will change drastically; people may commute suburb to suburb rather than from suburb to center city. Mass-transit planning may currently be based on getting large numbers of people to the center-city. Scanning may find an early signal that the actual commuting pattern in five years may not be at all what planners have assumed.

In the past, managers have reasoned that change in a system occurs gradually and incrementally. Now it is understood that small events or breakthroughs can cause enormous changes, and that "little trends may or may not be the beginning of a new paradigm."[9] Proposition 13, which radically changed the tax policies in California, started with one person! Scanners spot a signal and monitor it to establish a track record for what is happening, and then warn the organization to develop contingencies (or sometimes help the trend along).

Because the life cycle of a trend often means that its impact will not be felt for several years, the scanning committee must be freed from the pressure of *immediate* practicality. It takes four or five years for a scanning committee to reach the point of maturity and cost effectiveness, although many trends will be spotted early in the scanning committee's career. Practical visioning will come with time and experience. To be successful, scanning must focus on long-term processes.

One group of experts offers a checklist of questions to ask when spotting an interesting event or issue: Is the issue new? Does it have an effect? Can it be influenced? Is it timely? How important is it?[10] They also remind inexperienced scanners to search for new twists to old arguments, different applications of old technologies, new kinds of organizations, and innovative cartoons.[11]

Getting Ready to Scan

Once the scanning group is selected, systematically preparing the team for their issues scanning task can pay off by developing a cohesive group as well as promoting individual confidence. During a preparatory workshop an experienced practitioner can serve as a motivational speaker to get the team going, and he or she can also present the nitty gritty techniques of environmental scanning. It is helpful for the newcomers to hear about sources used for identifying trends, pitfalls to avoid in the process, and how to make sense of trend analysis.

The scanning prep workshop can also include practice using three developmental tools to help the scanner identify trends and analyze issues: brainstorming, using an implications wheel, and stakeholder identification.

Brainstorming is a commonly-used term but a seldom-used process. Used properly and frequently, brainstorming can help release creative thinking, and it can establish an open environment where individuals feel free to make unusual connections. Since divergent thinking is necessary for scanning, fluency in brainstorming is an excellent introduction. Brainstorming can be completed within 15 or 20 minutes. It is a good idea for everyone to briefly review Alex Osborn's rules for brainstorming:

- Defer judgment;
- Try for quantity and fluency of ideas;
- Be open to wild connections and crazy ideas;
- Combine thoughts, build on others' comments, and don't be afraid to piggy-back on another's suggestion; and
- Be comfortable with silence. The best idea often comes immediately after a brief lull in the discussion.[12]

Fresh topics for the brainstorming exercise can be identified in a number of ways, but those who teach scanning suggest using a week's worth of the *New York Times*, the *Wall Street Journal*, and the local metropolitan daily for a practice scanning exercise. Team members can scan the headlines, leads, pictures, and especially interesting articles to determine several emerging trends. Through brainstorming, and the subsequent discussion, the group identifies one issue to discuss.[13]

The issue becomes a central focus point in an implications wheel where the group responds to the question "What are the implications of (a proposed action relating to the issue at hand)?" By listing the implications of a proposed action as spokes emanating from a central hub, participants can visualize the many possible impacts the action or trend can have on an organization and its personnel. Each implication (whether negative or positive) can have a subgroup of implications all its own, and by the time the group explores the many implications inherent in a situation, there is a rich source of material for developing possible scenarios. Scenario development is a key method of capturing scanned information for planning.

Stakeholder identification is a very appropriate follow-up to the implication wheel exercise and provides for a humane conclusion to the pre-scanning workshop. Using large sheets of paper or a chalkboard, the scanning group leader writes down the names of groups or individuals who have a direct or indirect stake in a particular action. Most scanning teams discover that this exercise opens their eyes to the human aspect of every scenario, showing how the least obvious groups may become major players as a company or organization plans to change its course of action.

Monitoring and Analyzing Issues

After a good warm-up of brainstorming and other exercises in the prep workshop, the scanning team should be oriented and ready to tackle environmental scanning. Each team member is responsible for submitting findings—usually newspaper and periodical articles, but reports, brochures, even advertising, cartoons, and other sources should be encouraged. Political cartoonists, for example, have shown dramatic glimpses of a United Europe as the European Economic Community approaches 1992, and these cartoons could serve to alert any organization with international connections that 1992 will present new challenges that warrant planning.

Most scanning teams should decide on the general topics which will become their major scanning priorities. For example, almost all organizations will be concerned with changing demographics, but a pharmaceutical firm may be particularly interested in health and environmental issues; the banking industry will have keen interest in data privacy laws being enacted throughout the country, while retailers will be in touch with lifestyle changes that might reflect a need for new goods or a potential change in fashion. It is important, however, for the scanning group to avoid becoming too narrow in its focus, as change in the environment can often affect a company or a firm in subtle ways.

The paradigm of the scanner as journalist rather than scanner as researcher is one that can help the team understand their role. Just as a journalist is always scouting the "beat" to find news, a scanner works imaginatively to pick up signals of a change in attitude or direction. A certain signal may mean little and might be dropped after a brief discussion, or it may be the first of many similar cues that indicate a trend. For example, a school district newsletter reports that 65% of the 16- to 18-year-old students in the district work for up to 20 hours per week. That report combined with a news magazine article about the shopping habits of teens with discretionary income leads a financial institution to offer special credit cards to high school students. Educators read the same information and decide to monitor the effect working has on learning; research efforts are developed for this purpose.

Making Sense of the Scanning Effort

When it comes to organizing the items submitted by the team members and gathering them into common categories, the issues coordinator or scanning leader plays an important role. The leader attaches a cover sheet to the articles or other materials in each like category. The cover sheet lists the bibliographic information for each item and includes a paragraph that ties the concepts expressed in all of the articles together. The categories (four or five is plenty) form the agenda for the next meeting.[14]

The scanning meeting should allow for free flowing discussion with the issues coordinator again being a key player. The coordinator presents the topics for discussion, keeps the content analysis of scanned material going, occasionally summarizes the discussion, and takes notes for future analysis. The coordinator or facilitator performs as a sense-maker and a motivator in the process, but he or she always stays in the background so that the voice of the scanning group can be heard.

It is the scanner's responsibility to read the packets in advance so that some time for reflection will allow the discussion to be intelligent and informed. The scanning team must concentrate on the issues themselves, leaving power and turf considerations behind. They must decide in the limited time available which emerging issues will have important organizational implications. The major portion of the meeting should be devoted to deciding on the possibility and probability of the trends discussed having an impact on the organization. Some time should be devoted to prioritizing and scenario development. Often a simple implication wheel can be used with responses to the most pressing issue as a focal point. The group identifies the negative implications with a minus sign, the positive with a plus, and the scenarios proceed from there.

A free-wheeling give-and-take discussion is the heart of the group's work. Each scanner must be a negotiator, a skilled conversationalist, someone who is not afraid to express an opinion and who is able to offer evidence to support that opinion. Discussions should be vigorous and scanners must have the self-confidence to be daring in presenting new information. By risking the expression of a new idea, the scanning group can identify the new trends that it may need to survive and flourish.

This method of conducting the scanning meeting is clearly a qualitative one with the analysis of information and prioritizing highly dependent on the scanning team's experience and the quality of their thinking. Using this method requires the team members to make the connections, the "leaps" between a new and seemingly unrelated trend in the environment, and the organization's mission. One advantage to having a group scanning effort rather than an appointed single scanner is that the group provides a synergy and an objectivity that is difficult to find in one individual acting alone.

The group can supplement its work, however, with other tested methods, some of which are more quantitative than qualitative. One of these alternatives is the use of a matrix with certain critical variables weighted according to an organization's strategies and past experience.[15] Computerized Decision Support Systems (DSS) can also be effective if the software is easy to use and the facilitator is comfortable with the process. Most DSS packages can assist with developing group consensus because with individual keypads for each participant, the system offers forced choice and scaled decision points. Participants vote for various options as the group moves through the prioritizing of issues. Other helpful methods include legislative tracking, Delphi surveys, and interviewing.

Follow Up

Follow-up to the scanning team's work and the dissemination of its results can take the following forms:

- a bimonthly one-page listing of pertinent articles with a single line abstract distributed to staff; individuals can request a photocopy of a whole article;
- a monthly or quarterly scanning newsletter with a summary of the findings from the scanning efforts;
- a column or article in an organizational newsletter already existing;
- an addendum to Current Awareness Service reports;[16]
- executive reports for managers and/or executives.

Probably the least effective of these dissemination efforts is the article or column in an existing newsletter because it can take on an afterthought quality that is easily ignored. The scanning newsletter is the most effective, but as anyone who has had the responsibility of a newsletter knows, it is a time-consuming and labor-intensive process. If the scanning process reaches the status of having its own staff member, however, a newsletter is a worthy and satisfying endeavor.

Keys to Scanning Success

New scanning teams can warm up to the process by learning from veteran trend watchers. Experienced scanners say that executive endorsement, a receptive organization, and active team participation are the keys to success:

"You must have the support of top management in a trends analysis effort, and you must have management that does not feel threatened by new ideas and new challenges."[17]

Of course, it is critical to garner support from the organizational leaders and the decision makers in order for the team's work to be taken seriously. Having definite support makes everything easier, from planning meetings to guaranteeing that strategic planners and policy analysts will give the scanning results careful consideration. There also needs to be an organizational commitment of time and resources, although scanning requires surprisingly little financial support, especially considering its potential benefits. A good conference room, some secretarial help, access to photocopying, and a dose of encouragement are the items required to make a scanning project function. The rest of a group's success is up to the group itself.

The element of creativity and the ability to make connections between emerging trends and organizational goals is hard to overstate. A free and open spirit is so important that the group should be comfortable and refreshed when meeting to discuss the most recent findings. Early morning meetings are recommended because the group will be rested and energetic. Meeting quarterly is preferred by many scanning groups. At first a quarterly schedule will seem too limited and too seldom for a group that is brimming with promise and enthusiasm, however, meeting more often can become a burden when scanning work is added to an otherwise full work schedule.

Some scanning teams such as the Wisconsin Department of Natural Resources Trend Analysis Group (TAG) meet twice a month and report great success and demand for their services.[18] Meeting quarterly, however, lets everyone know that this is a long term process which will take time. Scanning is not meant for fire-fighting or to solve immediate problems, but is intended to deal with long-term situations two to ten years in the future. Meeting four times a year allows the team members enough time to gather information as well as reflect on emerging trends; also the facilitator then has enough opportunity to sift through scanning submissions, make sense of the material, and organize meeting packets for the group.

Starting small and experimenting with the scanning effort allows for building and adding sophisticated methods. Starting with a complex system is bound to lead to disappointment and discouragement if it must be pared back later.

As it is in any service task, the most important key to successful scanning is the human factor. A scanning team member will need divergent thinking skills and some of the following characteristics:

- risk taker
- imaginative thinker
- the ability to voice an opinion
- fluency in thinking and speaking
- networker with broad interests and constituencies
- a representative of a department, a point of view, or a certain expertise.

The group must be willing and able to take on an extra task (the scanning) and must be individuals who are altruistic enough to expect neither credit nor glory for the task at hand. As Coates states it, "Decide either you want the credit for what you do or you want something to happen; you cannot have both."[19]

Experienced environmental scanners also warn against "bureaucratizing" the process by making it too regimented and systematized. "Trend analysis requires free thinking, institutionalizing it too much will stifle the process. Free-thinking spirits are essential...."[20]

Benefits to the Library

Why should librarians become involved in the scanning or trend analysis process? There are many benefits for the organization's librarians or information specialists who participate.

- Trend analysis allows information experts to use information proactively.

- The process brings the library more visibility and provides the librarian with a natural vehicle for outreach.

- The scanning meetings and reports can provide excellent ideas for new acquisitions and collection development plans.

- It connects the knowledge acquisition process to organizational decision making, giving the information professionals an important stake in the company or agency's future.

- It provides librarians with inside information about future trends, thereby facilitating their own planning for new technologies, new staff development programs, and new managerial methods.

- As a renewal process, trend analysis usually gives those involved a new spark of enthusiasm for their work. The process tends to be lively and exciting and rewards those involved with a new outlook and a new way to use information.

Librarians as Scanners

Librarians are logical choices for membership on scanning teams for many reasons. They already network, both electronically and personally, and have usually learned the benefits of team playing. As part of their duties they constantly scan for new publications to purchase, making it logical for them to broaden this activity by membership on the environmental scanning committee. They see new publications first, and often note emerging issues in their daily work.

Professional training in information management teaches librarians to be neutral within the organization (office politics can scuttle a scanning program). As "information midwives," librarians do not normally create original information, but rather search for it, synthesize it, look for its patterns so they can organize it, and finally, get it to users.

Librarians are used to acting in an interdisciplinary manner and are not tied to one way of doing things. They will bring their unique generalist outlook to the work of environmental scanning. Without a librarian or information manager, a scanning group misses the opportunity to utilize a professional whose training and experience produce the necessary proactive philosophy.

Summary

Environmental scanning has become a widely-used technique for successful strategic management. Although many sophisticated methods are used by professional scanners, there are a few basic scanning operations which work well and can be instituted by any scanning group. The librarian or information specialist in an organization is a logical choice for membership on the scanning team. ■

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The Special Librarian: Results from a Survey of MLS and MBA Graduates

by Ellen Gay Detlefsen and Josephine E. Olson

■ Data is presented from a study of special librarians—who identify themselves as special librarians either by title or by type of user—taken from a larger survey of graduates of the University of Pittsburgh MLS program. These data reveal important new information about special librarianship that is based solely on the responses to questions about demographics, career patterns and work histories, and attitudinal issues made by several hundred active practitioners across the country. This study of MLS graduates was paralleled by a study of Pitt MBA graduates of the same era, and the comparisons between business and library professionals offer additional insights for our understanding of the contemporary special librarian.

This study presents information on a large sample of special librarians and compares them with a group of other librarians and with a group of business professionals, all of whom received masters degrees from the same university during the same time period. The comparison of special librarians with both groups is of interest because some special librarians, particularly corporate ones, have felt a closer identification with business professionals (MBAs) than with their colleagues in other areas of library science.

To date, special librarianship has not had much information about its practitioners that describes them both in demographic and attitudinal terms. The best data available have been the several surveys of members of the Special Libraries Association that SLA itself has done.[1] However, critics of these surveys point to the fact the SLA members are not always representative of the larger community of practitioners who are special librarians. They observe correctly that certain segments of the special libraries population are under-represented in SLA member surveys. In particular, these critics cite the absence of those whose primary professional association is to one of the subject-specialized organizations such as the Medical Library Association, the American Association of Law Librarians, the Music Library Association, the American Theological Library Association, the Art Libraries Society of North America, etc. These critics also note the absence of those representatives for whom affiliation with a type-of-library or type-of-activity organization is more rewarding, such as the academic special librarians who join the Association of College and Research Libraries, or the media librarians who affiliate with the Association for Educational Communications and Technology, or the computer-oriented professionals who choose to join the American Society for Information Science. Some even argue that surveys of members of any professional organization are suspect because they presuppose that an individual or that individual's library can afford the dues and time associated with professional association membership.

A data-based understanding of the special librarian is more likely to emerge from a survey of special librarians not tied to membership in a particular association. Such a study offers a broader and less biased base from which to describe the special librarian, and might thereby refute the critics of SLA surveys.

To that end, a 1986 survey of nearly 1,000 graduates of the MLS program of the University of Pittsburgh's School of Library and Information Science gathered data about background, professional work, and attitudes. Data selected from the survey responses can be separated by both self-reported title and by reported type of user, so that those who were working as special librarians or as specialized information professionals can be separately analyzed.

The study of these MLS graduates was paralleled by a study of University of Pittsburgh MBA graduates of the same era, and comparisons with that group offer some additional insights into the world of professional work. A few caveats are in order. Those surveyed in the MLS study received their degree during the period 1973 to 1984, an era when women's professional opportunities were greatly expanding and when women began to be actively encouraged to seek degrees in business, medicine, and law. Many women who might have chosen to enter an MLS program in an earlier time were instead accepted into MBA, MD, and JD programs, thus changing the character of the MLS candidate in that decade. Further, the University of Pittsburgh MLS alumni/ae population appears to include slightly more men and a slightly higher number of minority members than other studies of library school students indicate. Finally, the University of Pittsburgh, and its School of Library and Information Science, is a major urban Mid-Atlantic university, which primarily recruits and places its graduates in the Mid-Atlantic and Northeastern states. Schools, and graduates, from other regions may produce a slightly different professional librarian. Critics will also observe correctly that a study of members of a single library school's graduates is as easily faulted as a study of members of a single library association; what is true, however, is that the picture presented by data from the Pittsburgh study is perhaps less biased toward the corporate practitioner.

Methodology and Population

In the Spring of 1986, a questionnaire[2] was sent to 1,395 graduates of the University of Pittsburgh's Master of Library Science (MLS) program for the years 1973 to 1984. After several follow-ups, a total of 964 questionnaires were returned, yielding a response rate of 69 percent. In 1984 a very similar questionnaire had been sent to 2,047 graduates of the University of Pittsburgh's Master of Business Administration (MBA) program who had completed that degree between 1973 and 1982. Of these MBAs, 1,433 responded, giving a 70 percent response rate. Both questionnaires asked for considerable information on work experience, job titles, and salaries, as well as the usual demographic information; the surveys also included an extensive set of attitudinal questions about job satisfaction and beliefs about social and organizational issues.

In this paper, the authors for the most part use the MLS responses from the 616 persons who were working as librarians at the time of the survey in 1986 and, in particular, the responses from the 164 who checked the category "special" in response to a question about their "type of library or organization." The special librarians are also compared to the 1,357 MBAs who were employed at the time of their 1984 survey. In addition, at several points in this paper, the authors report on the entire MLS and MBA samples. A variety of standard statistical manipulations are used to handle the data; when reporting Chi square test or t-test results, the authors state that the differences are statistically significant if the probability that there is no true difference is less than .05. If the probability lies between .05 and .10, they state that the differences are only marginally significant.

The demographic material and career paths are reported on first, followed by reports on selected portions of the attitudinal responses to the questionnaire.

Gender, Race, and Age

The majority of the University of Pittsburgh MLS respondents were female. However, 21% of the special librarians and 22% of the other librarians were men. These percentages of males are higher than those reported in the SLA's own *1989 Triennial Salary Survey*,[3] in which 17% of U.S. respondents were male, as well as those reported in the 1986 SLA Member Survey Final Report,[4] in which only 15% of the sample were men.

In the Pittsburgh survey, 94% of both the special and the other (i.e. public, academic, and school) librarians were white, and 4% of both groups of librarians were black. Two percent of the Pitt graduates who were special librarians and 3% of the other Pitt graduate librarians reported that their race was a minority group other than black. The SLA *1989 Triennial Salary Survey*[5] indicated that respondents in that membership-based population were 95% white, 2% black, and 3% from other minority groups.

The proportion of men and women in the MBA sample contrasts greatly with those in the MLS study. Despite oversampling for women, the MBA survey was 69% male. On the other hand, the racial composition of the MBAs was similar to the MLSs; 95% were white, 4% black, and 1% other.

The special librarians in this study were slightly younger than other librarians who graduated from the University of Pittsburgh. The average age of the special librarians at the time of the survey was 36 years versus 37 years for other librarians. This age difference is marginally significant (p<.069). These data support the SLA contention in both the 1986 Member Survey and the 1989 Salary Survey[6,7] that special librarians are generally under the age of 40. However, given that the Pitt MLS population was limited to those who graduated between 1973 and 1984, our results are biased towards a younger respondent. The average age of the MBAs were surveyed two years earlier and then only for graduates through 1982.

Social Background

The Pittsburgh graduates who were special librarians seemed to have had similar social backgrounds to the other librarians and to the MBAs. Respondents were asked to rate the social class in which they were raised on a five-point scale (ranging from 1=lower class to 5=upper class). They were also asked to indicate the highest levels of education for their mothers and fathers, and to report the religion in which they were raised. The survey results indicate no significant differences among the three groups of Pitt graduates in their average response to the questions on social class and parents' education. All three groups were middle class and their parents had some college or other post-secondary education.

Interestingly, we did find some differences in the religions in which the three groups were raised. Special librarians were more likely than other librarians to be Catholic (41% vs. 35%) or Jewish (12% vs. 6%) and less likely to be Protestant (43% vs. 55%). the "other or none" category was 5% for both groups of librarians. By the standard statistical Chi square test, these religious differences are statistically significant (p<.013). There were also marginally significant differences (p<.094) in the religious background of the MBAs and the special librarians, with the MBAs being even more often Catholic (45%), more often Protestant (45%), and less often Jewish (6%) than the special librarians. The "other or none" category for religious affiliation among the MBAs was 4%.

Education

There are significant differences in undergraduate education between the special and other librarians (p<.001) and between the special librarians and the MBAs (p<.001). Special librarians were less likely than all other librarians to have majored in the humanities (30% vs. 39%), education (13% vs. 18%), and library science (6% vs. 26%) and in other subjects, including the natural sciences, engineering and business (19% vs. 5%). Only 4% of the MBAs majored in the humanities, 3% in education, and none in library science; 18% majored in social sciences and 76% in other subjects, particularly business and engineering.

Seventeen percent of the special librarians had another advanced degree versus 27% of other librarians and 14% of the MBAs. Another 6% of special librarians, 3% of other librarians, and 3% of MBAs reported that they were working on another advanced degree at the time of the survey. These differences are statistically significant (p<.017) between special and other librarians, and they are marginally significant (p<.070) between special librarians and MBAs. The timing of their advanced degrees was about the same for both groups of librarians; 54% of the special librarians and 56% of the other librarians had earned their other post-baccalaureate degree before earning the MLS. However, a significantly (p<.011) larger 77% of the MBAs earned their other advanced degree before the MBA.

The fields of the advanced degrees varied somewhat between the two groups of librarians, but the differences are not statistically significant. The special librarian's other advanced degree was less likely to be in the humanities (16% vs. 29%) or the social sciences (16% vs. 20%), and more likely to be other fields, including the natural sciences, engineering, and law (36% vs. 23%). The percentages were about the same for both groups of librarians whose additional advanced degrees were in education (24% vs. 22%) or in library science (8% vs. 6%). The types of other advanced degrees earned by the MBAs were quite different. Thirty-four percent were in engineering, 19% were in law, and another 7% had a second advanced degree in business, usually the doctorate.

Prior Work Experience

We next examine the full-time work experience of the three groups prior to earning their masters degrees at the University of Pittsburgh. We find a not quite marginally significant difference (p<.101) in the prior work experience of special and other librarians and very significant differences (p<.001) in the prior work experience of special librarians and MBAs. Those who became special librarians were less likely than other librarians to have worked as a librarian (19% vs. 23%) or as a teacher (11% vs. 15%) before entering the MLS program. On the other hand, the special librarians were more likely to have had a clerical job (22% vs. 14%) or some other type of job (22% vs. 14%), while only 27% of the special librarians and 29% of other librarians had no prior full-time work experience. Because there was no choice for "librarian" in the MBA study, we were unable to determine how many might have had prior jobs as librarians. However, only 5% of the MBAs had been teachers and 3% had clerical jobs. Twenty-three percent had no work experience before the MBA and the remaining 69% had other types of prior jobs (possibly including a few library positions).

The average years of prior work experience were about the same for the special librarians and other librarians (4.1 vs. 3.9 years), while the MBAs averaged 4.8 years of work experience prior to the MBA, marginally significantly (p<.099) more than the special librarians.

Career Paths Since the Master's Degree

Clearly the MLS graduates have followed very different career paths from the MBAs since earning their master's degrees. Nevertheless, there are still a number of dimensions on which the three groups can be compared.

Looking first at the two librarian groups, we examined whether an individual tended to remain a special librarian throughout the time since graduation from the MLS program, or whether there was some crossover among the traditional types of librarian.

As noted above, fewer special librarians worked in libraries before receiving their masters. After their masters, the majority of the current special librarians (77%) began their post-MLS careers as special librarians, but 23% of the special librarians did begin their professional careers by working in some other type of library. Only 7% of those now working in special libraries had a first post-MLS job that was not as a professional librarian. One special librarian respondent commented that:

> "In the years since I received my MLS degree, I have had a more varied experience with my library skills than ever could have been anticipated: academic reference librarian, assistant director of libraries, information specialist, library consultant, bibliographer, author/editor. Certainly opportunities [have] opened up abundantly for me with a very satisfying result from the personal standpoint."

Perhaps because they are younger than the other librarians, the average years of full-time work experience since the MLS were significantly less for special librarians than for other librarians (6.0 years vs. 6.8 years, p<.018) but about the same as for the MBAs (5.6 years). Despite their fewer years of post-MLS work experience, the special librarians on average worked for significantly more employers (2.1) than the other librarians (1.8, $p<.014$) and the MBAs (1.6, $p<.001$), while averaging significantly more promotions (1.2) than other librarians (0.9, $p<.045$), but fewer than the MBAs (1.9, $p<.001$). They had about the same number of lateral transfers (1.0)as other librarians (0.9) and MBAs (0.8).

We were also interested in whether or not special librarians with a Pitt degree were more likely to work in large urban areas than other librarians and MBAs. We found that the special librarians were a significantly ($p<.001$) more urban group than other librarians. Seventy percent of the special librarians were working in urban areas with populations over one million as compared with only 55% of other librarians. An additional 24% of the special librarians were in mid-sized cities and a mere 7% reported that they were working in rural areas. Twenty-eight percent of the other kinds of librarians were working in mid-sized cities, and 17% of the non-special librarians were pursuing professional careers in rural areas. More MBAs than special librarians worked in large urban areas (79%), but fewer worked in mid-sized cities (12%), and more worked in rural areas (9%). These differences between the MBAs and special librarians were also statistically significantly different ($p<.001$). In addition, the special librarians who graduated from the University of Pittsburgh appeared more likely to leave the Pittsburgh area in search of employment than other librarians who graduated from Pitt, although the differences were not statistically significant. Only 29% of special librarians were still working in the greater Pittsburgh area versus 36% of the other types of librarians. The special librarians were significantly more likely ($p<.001$) to leave the Pittsburgh area than the MBAs, 50% of whom were still working in Pittsburgh in 1984.

Finally, it does not seem that special librarians are any more likely to leave the library science profession than are other librarians. Of those in the entire MLS population who reported that their first post-MLS position was as a special librarian, 77% were still working as librarians in 1986, as were 78% of those who reported that their first position was as some other type of librarian. Thirteen percent of both groups were working in jobs outside the library field. And, as discussed below, nine percent of special librarians and 8% of other librarians were not employed at the time of the survey. In contrast to the MLSs, only about 5% of the MBAs reported working in nonbusiness occupations such as law, dentistry, and education, while another 5% of the MBAs were unemployed at the time of the survey.

Job Interruptions and Part-time Work

An additional aspect of an individuals' career history is experience with respect to permanent or temporary job interruptions and part-time work. Included in this portion of the analysis, in addition to the working librarians, were those in the study who were not working at the time of the survey but who reported that their last job was as a librarian, special or otherwise; this inclusion added another 16 special librarians and 45 other librarians to the data. Also included were 72 MBAs who reported that they were not working when they were surveyed.

Since receiving their masters from the University of Pittsburgh, 32% of the special librarians, 28% of the other librarians, and 24% of the MBAs had at least one job interruption. The interruption may have been because they were unemployed or because they voluntarily dropped out of the labor force for some period of time. The difference in the percentages is not statistically significant between the two groups of librarians but it is between the special librarians and the MBAs ($p<.010$).

Thirty-two percent of the special librarians, 35% of the other librarians, and 9% of the MBAs experienced part-time work at some point since earning the masters. The difference between the special librarians and the MBAs is significant at $p<.001$. The response of one special librarian seemed typical of many who worked part-time voluntarily:

> "Having an MLS degree has enabled me to find interesting part-time employment and to contribute to the family income, which was particularly important while our children were in college. I feel fortunate to have

been able to make the choice to work part-time and to have had a more pleasant, less hectic life as a result."

At the time of the survey 9% of special librarians, 9% of other librarians, and 5% of the MBAs were not employed. Eight percent of the special librarians, 10% of the other librarians, and 1% of the MBAs were employed part time; 83% of the special librarians, 81% of the other librarians, and 94% of the MBAs were employed full time. Again, the slight differences in these numbers between the two groups of librarians are not statistically significant. The differences in the employment figures for the special librarians and the MBAs, on the other hand, are statistically significant ($p<.001$).

These results indicate that the MBAs were somewhat less likely than the MLSs to have experienced a job interruption and much less likely to have experienced part-time work. The lower MBA figures for job interruptions are mainly a reflection of the different gender composition of the two samples; women in all three groups tended to have more job interruptions than men. However, both men and women MBAs were less likely to have worked part time than the two groups of librarians, perhaps because there are fewer opportunities in business for part-time work.

Salaries

Our evidence suggests that special librarians start at higher salaries after their MLS than other librarians; the salary gap between special librarians and other librarians continues over time. However, the average salaries of MBAs far exceed the salaries of both librarian groups.

Because the reported starting salaries were for different years and because inflation varied considerably over the time period in question, we adjusted the reported starting salary figures to 1985 prices, using the *Consumer Price Index*.[8] The average adjusted full-time salary for special librarians was $20,600, significantly higher ($p<.012$) than the average adjusted salary of $19,200 for other librarians. The average starting salary for MBAs adjusted to 1985 prices was a significantly ($p<.001$) higher $35,600.

Since women have traditionally earned less than men in the overall labor force, we also tested the data to see if there were gender differences in the starting salaries of special librarians. The 1985 average adjusted starting salary was $21,000 for men and $20,500 for women; this small difference of $500 was not statistically significant.

Looking at their current reported (1985) full-time salaries, special librarians averaged $25,200, higher than the $22,200 average salary for all other librarians. The $3,000 difference is statistically significant ($p<.001$). The average salary for male special librarians was $27,100 and for females, $24,700. The average difference of $2,400 is only marginally significant ($p<.067$).

Since it is frequently assumed that the salaries of special librarians differ not only from other librarians and by gender, but also among the types of special librarians, we looked at average 1985 salary by type of special library. To test for salary differences, the special librarians were divided into subcategories based on their open-ended responses to a question on the "type of user served." The five subcategories of special library chosen for this paper were corporate, legal, medical, scientific, and "other" special libraries. Table 1 shows the overall average salary by these types of special library and by gender within each category.

The statistical technique used to derive these averages, the Analysis of Variance (ANOVA), indicated that there are significant ($p<.001$) differences by type of special library and marginally significant ($p<100$) differences by gender.

Corporate and scientific libraries pay the highest average salaries, while medical and "other" types of special libraries pay the lowest. The "other" special librarians with lower salaries may in fact be working in divisions or departments in academic or public libraries, with salary structures that reflect the overall salaries pertaining to the parent organization, rather than any particular salary for the special librarian. Similarly, the population of medical libraries includes all medical librarians, whether or not they are working in an academic health science center, a large teaching hospital, or a small community hospital.

Women earn less on average than men in all

Table 1 — Average 1985 Annual Salary by Type of Special Library and by Gender

Type of Special Library	n	%	All	Men	Women
Medical	46	34%	$23,400	$26,500	$22,400
Other	20	15%	$24,100	$23,600	$24,500
Legal	12	9%	$25,700	a	$24,800
Science	22	16%	$26,700	$30,300	$26,700
Corporate	35	26%	$27,300	$29,300	$27,100
TOTAL	135[b]	100%	$25,200	$27,100	$24,700

a Data not reported for reasons of confidentiality; too few men fall into this category.

b The total is less than 164 because of missing values; not all respondents were willing to share salary data.

special libraries except the category of "other" special libraries, where the salaries are low regardless of gender. Because of the small number of men, we drew no conclusions about gender differences in the salaries of law librarians.

Although special librarians, particularly corporate and scientific librarians, earn more on average than other librarians, their salaries are well below their MBA counterparts in the corporate world. The Pitt MBA survey found that in 1983, two years earlier, the average salary for MBAs was over $40,000.[9]

Issues of Marriage and a Family

Since a number of studies have argued that professional women, women with MBAs, and women in business careers are less likely to marry and have children than other women,[10] we examined the marital and family status for our three groups by gender. Do these women professionals make more sacrifices than their male colleagues, and do any differences vary by the three groups of professionals? Our results show that for special librarians and MBAs, fewer of the employed women were married than the employed men, and fewer of these same women had children.

Looking first at the women, no significant differences were found in the marital status of the three groups of women. Of the women who were employed as special librarians at the time of the survey, 35% were single as compared to 31% of the other librarians and 35% of the MBAs. Six percent of the women special librarians were living in a stable relationship with someone as opposed to 3% of other women librarians and 5% of the MBAs. Half (50%) of the women special librarians, 55% of the other librarians, and 53% of the MBAs were married. Nine percent of the women special librarians, 11% of the other librarians, and 9% of the MBAs were divorced or widowed.

The differences in marital status were apparently greater among the three groups of men, but the numbers in some categories were too small to allow for tests of statistical significance. Eighteen percent of the male special librarians, 34% of the other male librarians, and 15% of the MBAs were single. Another 18% of the male special librarians, 4% of other librarians, and 2% of the MBAs were living in a stable relationship with someone else. Sixty-five percent of the male special librarians and 78% of the male MBAs were married; these figures are higher than for their female counterparts. However, 53% of the other male librarians were married, about the same percentage as for their female counterparts (55%). Finally, none of the male special librarians reported being divorced or widowed, while 8% of other male librarians and

4% of the MBAs were divorced or widowed.

There were greater differences among the groups and sexes with respect to children. Looking first at the employed women, 38% of the special librarians and 43% of the other librarians had children—this difference was not significant. However, the somewhat younger women MBAs were significantly less likely to have children than the special librarians (26%, $p<.010$). Among the employed men, 47% of the special librarians, 42% of the other librarians, and 60% of the MBAs had children, but these were not statistically significant differences. Thus it appears male special librarians and male MBAs were more likely to have children than their female counterparts; the difference is particularly large for the MBAs.

Job Satisfaction and Motivation

Finally we investigated whether special librarians were similar to or different from the other librarians, and from the MBAs, in terms of their feelings of overall job satisfaction, their level of satisfaction with their specific job characteristics, and their attitudes about some values which typically motivate people to work. We compared the average responses by Pitt MLS graduates both in special libraries and in all other libraries, and by Pitt MBA graduates, for a series of questions relating to job satisfaction and motivation, asked in both the MLS and MBA questionnaires. These responses are shown in Table 2. The first column shows the average score for special librarians; the second reports the scores for other librarians and the third, for MBAs.

There were no significant differences in the average levels of job satisfaction among the three groups. On average, all three were "satisfied" with their present position, with MBAs and special librarians being equally satisfied with their current positions. There were also few significant differences in the scores on the importance of specific job characteristics except, not surprisingly, with respect to pay. MBAs were most likely to agree that their "pay is good," special librarians were the next most likely, and other librarians were the least likely to agree with that statement. Both the differences between special librarians and other librarians, and between special librarians and MBAs, are statistically significant ($p<.001$ and $p<.004$). MBAs were also slightly more likely ($p<.060$) than special librarians to think that their "supervisor is successful in getting people to work together."

In terms of motivational values, special librarians are more like other librarians and less like MBAs. All three rate "having a career, not a job" as important. However, "becoming recognized in your field" is significantly ($p<.001$) more important for MBAs than for special librarians. On the other hand, "doing an excellent job, no matter what field" and "helping people" are significantly ($p<.015$ and $p<.001$) more important concerns for special librarians (and for other librarians) than for MBAs. In contrast, "helping people" is marginally ($p<.073$) more important for other librarians than it is for special librarians, perhaps contradicting that cherished notion that special librarians rank helping their clients above all other activities in the special library.

The one motivational value where there were significant differences among the three groups is "making a lot of money." Special librarians rated making lots of money higher ($p<.002$) than did other librarians but lower ($p<.001$) than did the MBAs. This finding may result from the fact that special librarians are paid higher salaries on average than other librarians and less on average than the MBAs, or it may reflect the possibility that special librarians are simply more money-oriented than their peers in other types of libraries.

Conclusions

The data from this real-life group of working special librarians can be expressed as a composite describing an individual who is a white woman under the age of 40, who majored in a social science field as an undergraduate, and then worked for several years before taking her MLS program at the University of Pittsburgh. She is married, and may have children. Her first professional job was in a special library, and she is now employed full-time in a corporate or medical library in a large city. She has worked

Table 2 Average Response to Job Satisfaction and Work Motivation Questions

	Special Librarians (n=164)	Other Librarians (n=451)	MBAs (n=1,357)
Job Satisfaction			
How satisfied or dissatisfied are you with your present position? (1=very dissatisfied; 5=very satisfied)	3.80	3.77	3.80
Job Characteristics			
How true are each of these statements about your present position? (1=not at all true; 4=very true)			
"I am given a chance to do the things I do best."	3.32	3.30	3.25
"The pay is good."	2.87	2.48[a]	3.10[b]
"The people I work with take a personal interest in me."	3.11	3.20	3.10
"My supervisor is successful in getting people to work together."	2.65	2.76	2.80
"Promotions are handled fairly."	2.72	2.70	2.83
Motivational Values			
How important are each of the following to you personally? (1=not at all important; 5=extremely important)			
Having a career not a job.	4.12	4.04	4.26
Becoming recognized in your field.	3.15	3.09	3.52[b]
Doing an excellent job, no matter what field you are in.	4.71	4.67	4.60[b]
Helping people.	4.16	4.29	3.83[b]
Making a lot of money.	3.33	3.07[a]	3.73[b]

a Difference between types of librarians is significant at the .05 level.

b Difference between special librarians and MBAs is significant at the .05 level.

for two different employers, has been promoted at least once, and has had one lateral transfer. She was moderately satisfied with her salary in the mid-twenties (as of 1985), but wants to make more money; she firmly believes that her career is important, wants to do an excellent job, and is quite interested in helping people.

In contrast, the typical MBA graduate of the same era is a white male in his mid-thirties, who majored in business, economics, or engineering, and worked for several years in a technical or business position before taking the MBA degree at Pitt. He is quite likely to live in the Pittsburgh area; he is working in the corporate, for-profit sector, and has not pursued additional graduate education. He is married and has two children. He was moderately happy with his salary which averaged $45,000 in 1983, but also wants to make a lot of money. He believes that "having a career, not a job," and "doing an excellent job," are more important than "helping people."

Judging from the extra comments which many respondents chose to append to their questionnaires, a number of the special librarians in the population are interested in business and in a career shift into management, or at least into a field where the salaries are higher. Some even recognized explicitly the need for the MBA degree. As one of our special librarian respondents put it:

> "My library degree has enabled me to work for two very large, successful companies. I earn a great deal of money which makes me very happy. However, upward mobility is very limited without another degree such as [one in] business... I have been exposed to a great deal [of experience] in my years of corporate librarianship and I wouldn't trade them for anything. However, I am ready for a career change."

And, as another special librarian wrote:

> "Although I enjoy many aspects of my work, I often wish I had perceived before entering the field just how poor the remuneration is compared to other career options I could have followed at the time I decided upon obtaining my MLS. I have also been astonished at times at the lack of respect for my profession and total misunderstanding of what librarians actually do that I have found among some members of my current organization... I think I am currently suffering from burnout, something I suppose most people would not realize was possible in our field, but perhaps has come from working in a very financially unstable organization."

These and other comments which the respondents chose to add to their surveys demonstrated a real interest in personal and professional growth, and in careers that will allow them to succeed in both their profession and their personal lives.

Further analysis of the responses of those MLS graduates who leave the profession of librarianship entirely, and also of those who are actively making their professional commitments in other kinds of libraries, may need to be done in order to add to our knowledge of information professionals at the turn of the nineties. ■

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2 Copies of the MLS and MBA questionnaires are available from the authors; contact Ellen Detlefsen, School of Library and Information Science, University of Pittsburgh, Pittsburgh, PA 15260.

3 *SLA Triennial Salary Survey 1989, op. cit.*, p. 3.

4 *SLA Member Survey Final Report, op. cit.*, p. 8.

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7 *SLA Triennial Salary Survey 1989, op. cit.*, p. 5.

8 *Economic Report of the President; Transmitted to the Congress, February 1988*. Washington, DC: U.S. Government Printing Office, 1988. p. 313.

9 Olson, Josephine E. and Irene H. Frieze. "Summary Report" (unpublished paper sent to participants in study). Pittsburgh, PA: Katz Graduate School of Business, University of Pittsburgh, 1985. This summary, and the summary report for the MLS study, are available from Ellen Detlefsen, School of Library and Information Science, University of Pittsburgh, Pittsburgh, PA 15260.

10 For a discussion of these studies, see Olson, Josephine E. and Irene H. Frieze. "Income Determinants for Women in Business," in *Women and Work: An Annual Review*. Volume 2. Ann H. Stromberg, Larwood, Laurie, and Barbara A. Gutek, eds. Newbury Park, CA: Sage Pubs., 1987. pp.192–193.

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Medical Information, Health Sciences Librarians, and Professional Liability

by Arthur W. Hafner

■ **As a gatekeeper to medical literature and a critical link in the delivery of information to physicians, the librarian's role raises the issue of the librarian's professional liability. The paper suggests several ways in which liability may attach to the librarian or the librarian's employers. Although the librarian's personal risk is negligible, the physician's exposure due to ineffective library work is substantial since the courts have held that a physician must keep abreast of progress in his field. Librarians can also become associated with professional liability actions as part of a case against a physician or hospital through the legal doctrine of vicarious liability.**

The paper concludes by suggesting several proactive steps for health sciences librarians to pursue to insulate themselves from professional liability and to insulate physicians and institutions from vicarious liability.

The pace at which information accumulates in contemporary society has drawn the health sciences librarian into a closer alliance with the physician. No longer simply an archivist of medical knowledge, the medical librarian must be able to wield an already vast and continuously growing body of information with speed and skill.[1] The librarian's ability to quickly provide the physician with information that is up to date, complete, and yet manageable, is becoming a factor in the quality of patient care. As the librarian's management of information impacts more directly than ever on patient treatment decisions, the health sciences librarian may wonder if he or she shares any liability risks with the physician.

Access to Information

Nowhere has the contemporary proliferation of information been more dramatic than in the health sciences. At the current rate of accretion, the amount of medical-scientific knowledge doubles every five and one-half years.[2] Librarians are the gatekeepers to this often neglected element of clinical practice. In order to make the most efficient use of computer-assisted databases, physicians committed to delivering state-of-the-art care turn to highly-trained information intermediaries who can efficiently identify and extract relevant studies and journal articles from the nation's expanding medical databases.

Physicians who conduct their own searches may be mistakenly satisfied with a search that is incomplete due to faulty subject heading vocabulary or search strategy.[3,4]

Professional Liability

The health sciences librarian's expanded responsibility for patient care automatically raises the issue of professional liability. What are the likely legal consequences if a patient suffers because of information that was incomplete, inaccurate, or delayed in its delivery to the attending physician? In reality, the liability risk to the librarian is small. There are no reported state or federal cases of librarians being named as defendants in a professional liability action. This may simply be because lawyers, when seeking to recover damages for their clients, look for targets with greater financial assets than the health sciences librarian.[5]

Although the librarian's personal risk is negligible, the possibility of a physician becoming embroiled in a professional liability action due to ineffective library work is substantial. Courts have consistently maintained that a physician has a duty to keep abreast of the progress made in the field and to be continually aware of the current literature relevant to the clinical problems a physician must confront.[6, 7, 8] Regular and thorough review of professional literature is an element of good practice, and failing to perform such a review may be tantamount to negligence.[9]

Informed Consent

In a 1981 landmark case, *Harbeson v. Parke Davis*, a Federal Court ruled that the doctrine of informed consent required a physician to furnish a patient with sufficient information to allow that patient to make an informed decision about his own care. This included a duty to provide the patient with current information reasonably available in the medical literature.[10] *Harbeson* involved an epileptic patient, Mrs. Jean Harbeson, who was taking the anti-convulsant drug Dilantin. Mrs. Harbeson was considering having children, and she consulted three physicians concerning the possible consequences of taking Dilantin during pregnancy. She was told that any effects the drug might have on her children would be temporary or correctable. Acting on this advice, she had two children, both of whom suffered from severe and irreversible birth defects.

Even though the physicians in *Harbeson* were not aware of the threat Dilantin posed to the unborn, studies linking the drug to birth defects were reported in the medical literature at the time of Mrs. Harbeson's consultations. The Court in *Harbeson* ruled that the physicians had a duty to acquaint themselves and their patients with this information.

Vicarious Liability

The task implied by this legally mandated duty is daunting. Each month thousands of biomedical periodicals are published. Each contains scores of articles, any one of which could have a significant influence on a physician's treatment decision. With only limited time available for review and assimilation of new information, the physician must rely on the expertise of the librarian as a guide to what is truly essential.

If a medical librarian becomes associated with a professional liability action, it will probably be as part of a case against a physician through the legal doctrine of vicarious liability. This is where one party (the physician) who may be entirely innocent of any personal fault, is considered responsible for the negligent actions of another (the librarian).[11] Cases of vicarious liability are not new to medical law. As leaders of health care teams, physicians have been found liable for the negligence of nurses, therapists, and other attendants working under their supervision. If a physician engages a librarian to perform a literature search, it is the physician who is held responsible if a patient suffers because the search was deficient. The institution employing the librarian might also be named as a party in such a legal action.

The librarian's work has long had an impact on physician practice and patient care.[12] The analysis above suggests that the librarian can also have an impact on the liability of physicians and on the liability of hospitals, HMOs, and other institutions. Librarians should consider proactive steps which help insulate physicians and institutions from vicarious liability.

Conclusions

What steps, other than standardization of databases, can be taken to insure that information processing and delivery systems work up to their potential? Many of the health sciences librarian's regular professional development activities already serve this purpose. Most librarians work to improve their technical skills through activities such as continuing education programs, peer review of searches among colleagues, and client evaluation and review of individual searches.

Librarians could also consider establishing standards and clear-cut guidelines for the timeliness, thoroughness, and accuracy of medical literature searches. Consideration should be given to the varying needs of physicians, optimal searching strategies, the selection of relevant databases, and the choice of references to meet the needs of individual clients. A professional organization such as the Medical Library Association may well play a key role in developing such standards. Since liability law evolves differently for each state, health sciences librarians in each state may wish to develop standards until a national standard emerges. Such a proactive response may avoid a court-imposed standard.

As health care becomes more information oriented, health sciences librarians will exercise some influence over the evolving standard of care. They will be challenged to establish procedures which may eventually be considered routine steps in all competent treatment. Like all challenges, this one implies both greater risks and greater rewards. ■

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The Growth of Reference Services and Special Librarianship and its Consequences for Legislatures

By Samuel Rothstein

■ A paper presented at the Symposium on "Service to Congress: The Congressional Research Service at 75". Washington, DC, The Library of Congress, July 12–13, 1989. The presentation has also appeared in the *Legislative Studies Quarterly*.

Editors note: Some minor changes have been made to the Special Libraries *version.*

On July 16, 1989, the Congressional Research Service celebrated its 75th anniversary. The very warmest congratulations are indeed in order, but so too, are some amplifications and clarifications. It seems that both the present name of the CRS and its official date of inception tend to obscure its real beginnings. As I see it, 1914 was not the start of legislative information service but the culmination of a longish process; and the CRS was as much the product of developments in librarianship as of those in the congressional arena. Let me offer you my view of how and why the CRS came into being; you will not be surprised if I, as a librarian, center my attention on how the growth of reference services and special librarianship contributed to that creation.

Where to begin? If you think of information service to American congresspeople as a concept and a function rather than as a specific agency, then you begin with the establishment of the Library of Congress itself. After all, as its very name indicates, the Library of Congress was created for the use of the legislators—not just as a sort of amenity, but for its practical value in the conduct of their work. A *Senate Report* of 1806 states the purpose both clearly and with a delightful elegance of wording: "(the aim of the Library was) to furnish... such materials as will enable statesmen to be correct in their investigations, and by a becoming display of erudition and research give higher dignity and brighter luster to truth."[1] (That doesn't sound like a bad mission statement for the CRS even now does it? Mind you, "giving a brighter luster to truth" might cause some trouble!)

Actually, it is not too difficult to find early statements of good intentions like the one just quoted, and there is also some evidence that the LC staff occasionally did help congressmen find information.[2] Not much importance should be placed on what were really only cases of happenstance courtesy, these were not at all the same as the Library providing a regular service of informational assistance services. No, the blunt fact is that for most of the 19th century, the Library of Congress was doing little more for legislators than serving as a stockroom, supplying them such books as its meagre collection would allow.

There is nothing surprising about this situation because, in taking so limited a view of a library's functions, the LC policy-makers simply reflected an attitude toward libraries which was then almost universally held. Though amongst the very oldest of public institutions, dating back to antiquity, libraries had not really progressed very much from their original role as organizations dedicated primarily to the custody of materials.

Let me illustrate my point by an incident in the history of Yale University Library. You would think, that, of all types of libraries, those serving major universities would have been well regarded and amply supported. Not so. Here, in the 1860s, was the librarian of Yale threatening to resign because he had to pay his one assistant out of his own salary and because he himself had to stoke the Library's stove. His threat produced this memorable reply from Yale's president: "In regard to your leaving your place, my thoughts have shaped themselves thus: (the position of librarian) does not possess the importance which a man of active mind would naturally seek; and the college cannot now or hereafter ...give it greater prominence."[3] (By the way, the librarian in question was Daniel Coit Gilman, who *did* leave Yale and subsequently went on to become the founding president of Johns Hopkins University. And, of course, the Yale University Library also went on to somewhat bigger and better things).

When those bigger and better things came, they came rather quickly; it has been said that American libraries went through a kind of transformation in the last quarter of the 19th century. This is not the right occasion to detail all the reasons why, but it *is* important here to note that one of the major factors in effecting this great change was the *professionalization of librarianship*, which took place in this same period. The American Library Association was established in 1876, the first professional library journal in the same year, and the first library school about a decade later. These events signaled the advent of a new occupational calling: people who thought of themselves as primarily librarians and who saw their work as a career warranting their full attention and even dedication.

Of these new professionals, looking to make the most of their jobs, by far the most active and influential were the public librarians. American public libraries were a new kind of institution, essentially dating back no further than the 1850s. Being new, the public libraries were not fettered by the traditional custodial outlook. On the contrary, public librarians had strong incentive to promote greater use and provide more reader services. Melvil Dewey, describing the Brooklyn Public Library in 1885, proudly called it "the modern library idea:"

> "So came into prominence what we fondly term 'the modern library idea.' The old school librarian was a jailer who guarded his books, often from being read... The modern librarian is active, not passive. He is as glad to welcome a reader as the earnest merchant a customer. He magnifies his office, and recognizes in his profession opportunity for usefulness to his fellows inferior to none."
>
> Then Dewey, who at the time was librarian of Columbia University, significantly added: "We are trying to work out the modern library idea in a university library."[4]

So by the 1880s, there was in the USA an emergent profession, already moving beyond its original base in the public libraries to encompass other kinds of librarians. These people felt that their professional skills could make an extremely valuable contribution to the public good, and they looked, in effect, for new ways in which to demonstrate their worth.

Perhaps the most important of these new ways was a form of library service termed "reference work." Reference work, which may be briefly defined as personal assistance by librarians to individual readers in pursuit of information, had first been offered as a regular service to library users by Samuel Swett Green of the Worcester (MA) Public Library. In a notable paper of 1876, Green championed "The Desirableness of Establishing Personal Intercourse and Relations between Librarians and Readers".[5] (*That* is still my favorite title in all of library literature!)

As the title of Green's paper suggests, the first steps in the direction of personal assistance were tentative. Confined to providing guidance in how to use the library and to offering help in book selection, such assistance was seen as a distinctly minor function and just as a part-time duty for some staff member.

However, rather quickly the purveyance of assistance gained favor and popularity with the library clientele. It thus came to be regarded as an important activity of the library—as a central responsibility and not just a marginal one. As the work took on larger proportions, it required the full-time service of one or more staff members; after 1890, especially in the larger public libraries, it was commonly established as a separate department. Finally, when the library schools began offering separate courses on the subject, reference work achieved full recognition as a standard and important library function, with its own distinctive techniques and training.

By 1890, also, there were really two very different kinds of service subsumed under the one label of "reference work." The difference lay in the form and limits which the librarian's personal assistance to readers should take. The majority view—let's call it the conservative theory—was that assistance should be minimal: essentially confined to showing the inquirers how to make effective use of the library's resources, especially the catalogs. Anything more—so the conservative theory maintained—ran the risk of "spoiling" the readers by making them incapable of using the library on their own. The proper goal of the library was to promote the self-dependence of the reader and the proper contribution of the reference worker was guidance or instruction. Ainsworth Rand Spofford, then Librarian of Congress, pronounced a kind of official verdict when he stated in 1900: "It is enough for the Librarian to act as an intelligent guide-post, to point the way; to travel the road is the business of the reader himself."[6]

However, as is so often the case, theory did not wholly dictate practice. Although the great majority of reference librarians may have *espoused* limiting their assistance to guidance and instruction, they had in their actual work often found themselves drawn into providing an entirely different kind of assistance: "direct information service."

For one thing, it was often easier for the librarian to supply the information outright than to show the inquirer how to find it. Another reason, I suspect, was probably unconscious—many librarians, actuated by professional zeal, may have really *wanted* to do as much as possible for their clients. Regardless of reason, the outcome was the same; in many cases the reference workers did *not* limit themselves to guidance. And here is the significant point: even at the very lowest level of direct information service—as, for example, when the librarian merely provided the spelling of a word or the population of a city—*when librarians answered a reference question by supplying the wanted information itself, they were making a trulu radical extension of the concept of assistance.*

To show a reader how to use the catalog or a periodical index was merely to supplement the library's traditional apparatus. To supply the reader with *facts* meant that the librarians were no longer adjuncts to that apparatus but information suppliers pure and simple, the library now being just their working tool.

Melvil Dewey and the Beginnings of Legislative Reference Service

By 1890, then, the basic issues and options of reference service were well understood and there was already a considerable body of actual experience. The stage was hence set for the application of that experience and understanding to new settings and different clienteles. Thus, in an unplanned but logically linked sequence of ideas and events, the reference work concepts and practices originally developed in the public and academic libraries came to be adopted in state legislative libraries and ultimately in the Library of Congress itself. Here, then, is an account of the historically crucial first 25 years of legislative reference work, as it was created, grew, and eventually reached its initial level of maturity.

This evolution certainly had a most unlikely beginning; Melvil Dewey lost his job as head of the library and library school at Columbia University (1889). Dewey promptly went on to work three jobs—simultaneously—at Albany, one of which was the directorship of the New York State Library.

When Dewey went to the New York State Library, he brought with him a taste for innovation, his conviction that professional librarians had to take an active role as educators, and the view that reference work should rank high in a library's priorities. Dewey had, in fact, been probably the very first library director to have established a reference department formally designated as such and also the first to employ reference librarians on a full-time basis. His annual report (at Columbia) for 1886 summed up his position in his usual categorical style: "... we esteem this (the reference department) perhaps the most important single department"[7]

No wonder, then, that, when Dewey came to the New York State Library, he almost immediately (1890) established a "legislative reference section." It was the first department of its kind in the United States and perhaps in the world.

At this point, a question logically arises; with Dewey's background and views, his creation of a reference department at the New York State Library was inevitable—but why legislative reference? Dewey himself never gave a recorded answer, but a trustworthy explanation comes from John Boynton Kaiser, a contemporary whose monograph on legislative reference libraries (1914) was the earliest comprehensive account of the subject.

Kaiser linked Dewey's initiative to an important (and intriguingly named) issue of the turn-of-the century period, "the problem of intelligent legislation." As Kaiser explained it, concerned citizens and many legislators themselves had become increasingly disturbed by the "defects in law-making" at both the state and national levels. One major reason for "defects" was that the law-makers, mostly inexperienced and often not well-educated, had to cope with social and technical problems of growing complexity—and did so with little more information than that which could be filtered through the partisan propaganda of lobbyists and special interest groups. What the legislators needed was impartial, accurate, and authoritative information. To fill this need, a new library service, possibly a whole new library, had to be created.[8]

How novel was this approach? Both scarcely and largely. That legislators needed information had long been recognized and, indeed, as has already been indicated, was probably implicit in the very creation of state and national libraries. However, the idea that these informational needs of legislators could be met by *librarians* applying their professional skills in reference work was very new. So too were the feelings of sharp concern, urgency, and great expectations which inspired and attended the supplying of a special information service for legislators. There was a sense of a "cause" to be fought for, and it was thus no accident that the phrase most frequently applied to this whole approach was the "legislative reference movement."

To what degree Dewey himself was gripped by this sense of "cause" is not known. My guess is that he had too many other interests to make legislative reference work his prime priority. This reason may account for the fact that the service rendered by the New York State Library's legislative reference librarians, while recognized as important and of high quality, was essentially of the same kind and level as the conventional reference work conducted in the more advanced public and academic libraries of the day. The chief effort of Dewey's legislative librarians went into compiling an index of state legislation, to which was later added a review of comparative legislation and a digest of governors' messages. All three were covered in a series of regularly-appearing published bulletins. This was basically a bibliographic service, valued by the recipients and highly regarded in the library world, but considered to be not really breaking new ground in the methodological sense.[9]

Charles McCarthy and the Flowering of Legislative Reference

The New York State Library's "legislative reference section" may therefore be designated, to quote myself, as the "forerunner rather than the progenitor of legislative reference service".[10] In so far as legislative reference work represented a distinct and radical change in the concept and practice of information service, its inception did not come until a decade later. It has been identified by an overwhelming majority of writers on the subject, then and since, with the work of Dr. Charles McCarthy in the Legislative Reference Department of Wisconsin.

Like most innovators, McCarthy was indebted, in some important ways, to his predecessors and contemporaries. He was unquestionably familiar with the specialized service to legislators offered at the New York State Library. Perhaps more important, he was aware that, among the special librarians working for business and industrial firms, there were no qualms about offering a direct information service—and of an extensive nature, too. The special librarians' reasoning was unassailable: give their employers what they wanted. Since the special librarians' whole justification for existence lay in the time and effort they could save their employers, they were impelled to go as far as possible in meeting their clients' wishes to have information furnished quickly and in convenient form. Somewhat later, when an editor of the professional journal, *Special Libraries*, tried to pin down the development of special librarianship in a single phrase, he called it "the growth of a big idea." That "big idea" was that a library could operate as an information bureau rather than as a repository of materials and the librarian was a specialist whose "function it is to gather information, condense and combine it, and interpret the results to the man on the job."[11]

All this is to say that—no surprise—Charles McCarthy developed his ideas and methods in the context of his times. It is equally true that the Wisconsin Legislative Reference Department and its subsequent influence owed more to McCarthy's personal conception, initiative, and zeal than to any antecedents.

The development of legislative reference work in Wisconsin is almost the classic case of much arising out of little. In 1901 a law authorized the Wisconsin Free Library Commission to maintain a library in the state capitol for the use of the legislative and executive departments. Nothing much more was contemplated than providing a collection of books and government publications in the capitol building; McCarthy himself was hired for the hardly impressive position of "document cataloger." So much for job titles. Wholly on his own initiative, McCarthy began giving the Wisconsin legislators extensive assistance in obtaining the information they required. His work almost immediately won appreciation and support. In 1903 there was an appropriation specifically designated for legislative reference work and by 1907 the legislature allocated the then very large sum of $15,000 a year for this purpose. McCarthy's own title paralleled this progression; by a series of quick changes, he became, from 1907 on, "Chief, Legislative Reference Department."

In McCarthy's case, unlike Dewey's at Albany, there can be no doubt about the motivation, priorities, and intentions. Charles McCarthy was a dedicated and well-informed student of government, who took his Ph.D. at the University of Wisconsin in 1901. He was early and closely associated with the Progressive Movement for reform of governmental processes, which was led by Wisconsin governor Robert LaFollette. An important element in the reformers' thinking was the so-called "Wisconsin Idea," which maintained that good legislation and good government ultimately depended on sound knowledge and expert advice. McCarthy was thus convinced that providing legislators with accurate and full information was a crucial need—and one which could not be met without a radical alteration and extension of the usual library services.

From the outset, then, McCarthy adopted a policy of active, far-reaching assistance. "Go to the legislator," he advocated, "make yourself acquainted with him, study him, find anything he wants for him never mind how trivial, accommodate him in every way."[12]

Some of McCarthy's methods must have startled the librarians of his day, at least those outside the special libraries. He was ready not only to prepare a bibliography but also to present the results of a literature search in the form of a digest. In other instances, he would assemble a package of materials by tearing out the relevant pages of books and periodicals. (And this in an age when some librarians were still officially titled "keepers of books"!) Moreover, McCarthy did not balk at going beyond published sources—he made frequent use of telegraph, wrote letters of inquiry, and even went on field trips to secure the most recent data or the knowledge of experts.

Most radical of all, McCarthy held his department responsible not just for the collection and presentation of data but also for its validity. For example, when comparative legislation was requested, McCarthy felt that simply supplying the material could lead to blind copying of what might be outdated or unsuccessful laws. McCarthy would evaluate the legislation himself or, in other cases, solicit criticism from outside authorities such as professors at the University of Wisconsin.

Not surprisingly, McCarthy's actions provoked the occasional politically-motivated outcry against his "undue influence" in the lawmaking process, but on the whole his work enjoyed exceptional esteem and support from his own state's legislature. In the library world, his success became a chief argument for the inception of legislative reference departments in other states and his methods were their model. And all this happened with remarkable speed, too; by 1913 at least 32 more states had "undertaken this work on varying scales."[13] It really was a legislative reference *movement*!

Legislative Reference Work in the Library of Congress

Inevitably, the "movement" reached Washington and the Library of congress, where it met with what was by and large a sympathetic and prompt response. The way had, indeed, already been prepared in attitudes, and, to a lesser degree, in actions, for at least a decade. For example, the department of the Library of Congress known as the Congressional Reference Library was apparently providing some degree of reference service, probably of the limited type customary in general libraries.[14] More significantly, from 1906 to 1910, the Librarian of Congress, Herbert Putnam, had secured funds for the employment of a special staff to prepare an index to the statutes at large—work not so very different from what was being done in the very first legislative reference agency, at the New York State Library.[15]

This last suggests that Putnam, who, as the former director of three libraries, was fully aware of and closely associated with current trends in librarianship, was personally in favor of establishing a legislative reference service at the Library of Congress. The actual initiative, however, seems to have come not from Putnam but from the legislators themselves—and, logically enough, from those familiar with the kind of service rendered by Charles McCarthy in Wisconsin. Between 1907 and 1911 several congressmen, led by Senator Robert LaFollette and Representative John Nelson, both of Wisconsin, introduced bills to establish a legislative reference service.

Herbert Putnam, though obviously a little hurt at the fact that "certain of the propositions presented seem to have overlooked the fact that the Library of Congress has, for many years, performed many of the functions usual in legislative reference bureaus,"[16] gave the proposal for legislative reference service consistent and strong support. It was the subject of regular recommendations in his annual reports, and he also presented an extensive case for it in a special report of some 55 pages, issued as a letter to Congress in 1911.17 Significantly, he included in his special report statements of purpose and methodology from both the New York State Library and the Wisconsin Legislative Reference Department.

When it came to making a choice between these two views of legislative reference work, Herbert Putnam pretty surely favored the more limited New York plan over the all-out approach of Wisconsin. Putnam did not want his staff to be engaged in bill drafting and he felt that it was dangerous for librarians to take on what was called "the critical function," that is, assume responsibility for the *validity* of the information they supplied. On this last point, Putnam was unmistakably explicit: "...a statement of the *merits* of the information furnished...is not a safe function...for a legislative reference bureau; it is rather the province of an investigating commission."[18]

Perhaps Putnam's doubts about an all-out service accounts for the rather curious way in which the legislative reference service of the Library of Congress finally came legally into being. None of the rather grand bills, though favorably reported in committee, were enacted. Instead, in 1914, an amendment to the legislative, executive, and judicial appropriation included the following item: "Legislative reference: to enable the Librarian of Congress to employ competent persons to prepare such indexes, digests and compilations of law as may be required for Congress and other official use... $25,000."[19] The appropriation was renewed annually, though varying slightly in language and, of course, considerably in amount; it stood as the official basis for legislative reference service at the Library of Congress until the Legislative Reorganization Act of 1946.

Perhaps this modest wording, so reminiscent of the way in which the very first legislative reference work was established at the New York State Library, was more suitable than it may appear. At any rate, it bears out my concluding point. In the 75 years since 1914, the Library of

Congress went on to mount a full-fledged service of truly impressive proportions. The number and calibre of specialists on the C.R.S.'s staff has now made it come to look perhaps more like a massive research institute than a library. The present name no longer includes the term "reference service" or the word "library."

All this change, I heartily agree, is perfectly logical and appropriate. Yet is well to remember that the original concepts and methods of a legislators' research service derived as much from aspirations and advances in the library profession as they did from the needs and wishes of the legislators. In a very real way, legislative reference service represented (and still represents) a kind of flowering of American librarianship—the application to their ultimate extent of American librarians' long-held ideals of impartiality, confidentiality, and full-scale provision of information. Conversely, in their turn, American librarians feel proud to have contributed to the development of an idea which has had truly country-wide, even international, consequences and benefits. ■

Notes

Most of the material in this paper, with some modifications in contents and wording, has been drawn from my monograph: *The Development of Reference Services Through Academic Traditions, Public Library Practice and Special Librarianship* (Chicago: Association of College and Reference Libraries, 1955), especially chapter V ("Special Librarianship and the Concept of Amplified Service: Legislative and Municipal Reference Work, 1900–1916"); sources not cited below will be found in that monograph.

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Education for Special Librarianship

By Linda L. Hill

■ The Special Library Association's *Policy Statement on Graduate Education* (Appendix) of April 1988 presents in general terms improvements that are recommended in the educational program for the first professional degree, i.e. the MLS. This *Statement* is put in the context of the ALA accreditation process, Robert Taylor's recommendations for an MLS curriculum, and a current view point about education for academic librarianship. Suggestions are made toward a fuller statement of the educational requirements of special librarians.

The Special Libraries Association (SLA), in its April 1988 *Position Statement on Graduate Education* expresses concern "that many library schools' curricula do not offer the type or the range of educational experiences necessary to prepare students for careers in special librarianship."

They are not alone in putting forth recommendations for the improvement of the course of study that leads to the first professional degree in librarianship—variously named but usually referred to as the Master's of Library Science (MLS). The literature on education for librarianship is full of suggestions for improvement; the SLA *Statement* adds a new special library orientation to the discussion

The SLA *Statement* is limited to "those areas of current curriculum which require expansion or modification to meet the educational needs of potential special librarians." It is not, therefore, a complete outline of a recommended special library plan of study. The assumption is made in the *Statement* that "the competencies, skills, and attitudes derived from an accredited MLS program are important in any information environment." It presumes that basics such as cataloging, classification, and reference service, are part of the special librarian's education. The *Statement* also limits its recommendations to the library/information science component of graduate education and does not deal with the need for subject specific knowledge which is gained through other degree programs.

The SLA *Statement*, printed in full in the Appendix, is organized into five areas:

- Provision of information services;
- Technology;
- Management;
- Information resource (includes methods of organization); and
- Information service/product evaluation

The detailed requirements recommended for each section are pragmatic in nature, emphasizing the competencies needed by practitioners in special library settings.

To paraphrase the SLA *Statement*, "information services" require skills and methodology for project research, systems analysis and design, management and administration, problem definition and solution, decision-making, and the capability of performing "exhaustive database searching."

In the technology area, students need a knowledge of the variety of systems available, the capabilities and limitations of each and the compatibility among different systems. Competency in systems analysis and design and "advanced knowledge of computer science" is required. SLA believes that the management demands on special librarians, because they "are placed in management positions early in their careers,"are far greater than other librarians. Therefore, future special librarians need to understand general business management and organizational behavior to be able to communicate and work with other managerial personnel in the organization. They must also be able to understand and manage the flow of all types of information on an organizational level. Specifically, SLA says that there is a need for greater emphasis on communications, human resources issues, planning, budgeting and finance, marketing, cost effective performance, productivity, profitability, and leadership.

To be prepared to manage the information resources needed by the library's clients, special librarians need instruction in database design, indexing and abstracting methods, including thesaurus development, in addition to the basic skills of user needs analysis and collection development. And students should understand "various methods of measurement and evaluation, particularly those related to cost/benefit analysis." They must be able to assess client needs, measure how well library services are meeting them, and be able to justify the library's existence to the parent organization.

Threaded throughout the SLA *Statement* is dedication to a user-driven, client-centered information service that responds to requests immediately, or anticipates them, and packages information and services to meet individual or organizational needs.

This SLA *Statement* raises the following questions:

- Can these recommendations be incorporated into a one-year MLS program or would such coverage acquire an extended program? What are the implications for continuing education programs?

- Would it be necessary to modify accreditation procedures to institute these educational objectives or does the present system already accommodate these and other specific objectives?

- To what degree could these recommendations be incorporated into the educational stream for all librarians, not just those planning on special library careers?

- How do these recommendations compare to other current models of the ideal library curriculum in the library literature?

- Are there other equally important educational aspects *not* included in the SLA *Statement?*

The following discussion addresses each of these issues in turn.

Meeting SLA Objectives

In considering the debate over the length of programs leading to an MLS degree, the following issues must be addressed:

- Is it possible to educate librarians adequately in a 36-hour program?

- If not, do current salary levels justify lengthening the program?

A review of curricula of six library and information science (LIS) programs[1] reveals that the required number of credit hours ranges from 28 (Berkeley) to 48 (Columbia), with the mode being 36 credit hours. Michigan's 36-hour requirement provides a larger variety of courses than others by providing 2-hour, rather than 3-hour, courses. Rutgers provides a mix of 3-hour and 1.5-hour courses. Pittsburgh offers the possibility of getting some of the information science course work at the undergraduate level before entering graduate school.

Obviously, there is not a straightforward answer to the question posed here. Of the many ways to structure the educational process, the library and information science schools are doing so with an eye on their graduates' ability to earn salaries commensurate with their educational costs upon graduation.

Of course, the design of the university-based educational program for the first professional degree is linked to the design of continuing education programs. There will always be a need for management courses in continuing education programs because changes in employment, maturity and experience, and new techniques make frequent updating and exposure to new ideas necessary.

Technology is changing so rapidly that formal education is soon out-dated no matter how thorough it is. Some technology courses are better candidates for continuing education than they are for a university education, however. White, for example, has suggested that in-depth online searching is better as an on-the-job or vendor/database sponsored activity.[2] If so, then the librarian's course of study should contain only an introduction to online searching strategies techniques rather than the capability to do "exhaustive" searching as recommended by the SLA *Statement.*

Meeting SLA's educational objectives within a one-year program seems to depend on the degree to which the special library environment and service patterns are incorporated into the core curriculum, on the quality of the program in terms of faculty, facilities, and administrative support, on the involvement of special librarians in cooperative activities with the school, and on a clear understanding of what is most appropriately taught in formal university education and what is most appropriately learned on-the-job and through continuing education.

Accreditation Procedures

The present accreditation standards for the U.S. and Canada are implemented by the Committee on Accreditation, a unit of the American Library Association. The standards are based on the premise that each school is to be judged on its own public statement of its educational goals. The goals themselves are compared to general principles of librarianship and library education "as these are identified by common agreement through the major documents and policy statements of relevant professional organizations"[3] and to the needs of the constituency which the school seeks to serve. The Committee and the visiting teams then look at available evidence to see if the curriculum, faculty size and caliber, quality of the student body, the organizational placement of the school, the support received from the parent institution, and the resources, services, and facilities are adequate to meet the stated goals.

Several years ago there was an effort to reorganize the accreditation process.[4] The recommendation was to make COA an independent body supported financially by all U.S. and Canadian library associations. Although a great deal of planning went into this effort, the plan was never instituted. Perhaps the fact that money would have to be allocated to such an independent body dissuaded those who supported the idea intellectually,[5] or it may be that the library associations believe that the ALA-COA is after all the best vehicle. At any rate, COA remains an activity of ALA. The COA Committee members represent the public-at-large and ALA; make-up of the site visiting teams includes representatives of the major constituencies of the school. So, if a library and information science school has a strong program in special librarianship, the site visiting team will probably have a special library member. The site visiting teams make recommendations to the Committee; the Committee decides the question of accreditation based on the evidence and recommendations of the team.

SLA can influence the ALA-COA accreditation process by identifying SLA members for site visitation teams, by participation in the COA Committee by ALA members who are also SLA members, and by continuing to express the needs of the special librarian through formal statements such as the one we are reviewing. And, as pointed out by Clough and Galvin, "the accreditation process itself provides explicit opportunities for practitioner involvement in the substantial institutional self-study activity that should precede an accreditation review."[6]

SLA can influence particular curricula by formulating a complete statement of educational objectives for special librarians, communicating such a statement to library and information science schools, and requesting that each school publish a suggested program of study for those seeking a career in special libraries.

SLA Recommendations and Librarian Education

Special librarians are perceived by many to have led the way into "the integration of non-traditional materials (into libraries), automation, selective dissemination of information, and the recognition that, in delivering materials to patrons, speed is more important than cost."[7] Other types of libraries, however, are also incorporating these elements into their systems and services. For example, some public and academic libraries offer customized services for users, using fees to support them if the library budget cannot.

So, it may be that we are finally arriving at a time when the place-bound orientation of librarianship is fading away. An article by Anne Woodsworth and June Lester[8] is strong evidence that academic librarians are beginning to envision a new type of library service that incorporates "aggressive identification of user needs; delivery of almost all information at the level of the user's workstation; collaboration with faculty in developing new and customized services; and delivering faster, more convenient access irrespective of location."[9]

Woodsworth and Lester describe the following elements needed for the education of the future academic librarian.[10] Included in their requirements are:

(1) A strong technical and technological base...;

(2) Understanding of the information transfer characteristics of users, including information seeking behavior and information generating behavior within the various disciplines;

(3) Skill in identifying and analyzing the information needs of their constituencies as well as skills in evaluating information;

(4) Skill in evaluating information;

(5) Willingness to make information decisions based on expertise in both information management and subject or discipline;

(6) Knowledge of small group dynamics;

(7) Understanding of the organizational culture and environmental context of higher education;

(8) Understanding of and ability to analyze information policy issues;

(9) Understanding of the impact of both national and international economy on information access...;

(10) Ability to analyze the political process within the higher education environment...;

(11) Understanding of the generation, production, and distribution of information and the changing paradigm that is occurring as the chief takes place from print-based information production to other modes of production and dissemination;

(12) Competency in instructional design and adult education programming...;

(13) Communications theory and application to information repackaging.

They further recommend that type-of-library courses and multiple courses in bibliography devoted to specific sources and tools be eliminated from the curriculum; that "every course addresses not just knowledge, but analysis, synthesis, and evaluation [of] objectives";[12] that the length of the educational program be increased; that education orientation be on principles, theory, and foundations and not on details per se; that recruitment must be focused on getting "the brightest and the best" into the field; that salaries must be increased to accomplish this; and that continuing education opportunities be made available for existing staffs to make the transition.[12]

This article points to a common ground of education for librarianship suitable for special librarians as well as academics. It is not very far afield from the thrust of the SLA *Statement*, leading to the conclusion that a common educational scheme appropriate to most, if not all, librarians is possible. To be considered is whether the needs of school, public, and children's librarians, for example, are substantially different and therefore need a different program of study; whether the specific organizational setting (e.g., academic vs. corporate) or the specific subject area (e.g. science vs. humanities) are so different that they require separate attention in the educational program. Also, it must be pointed out that the Woodsworth/Lester vision of the academic library may not represent the generally maintained view; as recently as 1981, a survey of Association of Research Libraries directors came up with a more traditional set of educational priorities.[13] Lack of common educational ground and great variability within the special library realm itself was also the conclusion of the White and Paris review of "Employer Preferences and Curriculum" in 1985: "It is possible that no single overall strategy can be devised and that it will be necessary to fragment our profession into a series of subprofessions, at least into a series of educational specializations. That would be unfortunate, but it might be necessary."[14]

SLA Educational Objectives vs. Other Library Curricula

In his monograph *Value-Added Processes in Information Systems*, Taylor includes a section on "The Implications for Education."[15] His approach is based on user-driven systems where content and technology only have meaning within the framework of human users. His approach is also practice-driven, with an emphasis on the function, design, and operation of information systems and services as they exist now and as they can be predicted to be in the near future.[16] His framework has six foci:

- Information use environments: An understanding of the contexts from which the need for information arises and of the various ways of perceiving and describing those environments.

- Intellectual technologies: These are the methods used to organize information for storage, retrieval, and for communication in textual form graphic structure, and visual image, including database design, indexing structure, and classification systems.

- Availability of data, information, and knowledge: Understanding the variety of agencies which generate, store, analyze, publish, transmit, and market data, information, and knowledge and how these processes may be affected by current and potential information technologies.

- Information systems and services: System design, analysis, and evaluation.

- Information technologies: An integrated approach to systems such as publishing, computers, non-print media, television and radio, micrographics, and telecommunications, evaluating for system compatibility and utility and cost-effectiveness.

- The economics of information provision and use: How people and organizations choose to use and to distribute information resources and ways of improving the benefit/cost ratio.

Taylor also states that the attitude of intelligent consumption of research data should affect and inform all professional education, that an informed skepticism should be nurtured, and that we should educate for a capability in field observation, data collection, and precise description.[17]

Figure 1 attempts to display graphically, on a two-dimensional plane, the relationships among the various models of library education considered here: the SLA *Statement*, the Woodsworth & Lester approach for future academic librarians, and the Taylor model. A three-dimensional model would be needed to bring into the picture the attitudinal characteristics and research orientation that are also important for library/information science professionals; these characteristics overlay or support all of the components shown here. This "spatial" analysis of the concept space of LIS education gives insight into the common ground of recommendations for LIS education by overcoming the varieties of categorization and description and terminology from different points of view.

In this graphic, the field of library/information science is divided into seven main concept areas. Six of these basic boxes are based on the scheme developed by Taylor that were just described. An additional box was added to represent the realm of management.

The user is depicted as being central to the whole system by using Taylor's category of *Information Use Environments*. This category is not specifically included in SLA's statement, but his areas of "provision of information," "technology," "evaluation and measurement," "and information resources" certainly merit attention to this aspect of the profession.

Six of the Woodsworth & Lester categories overlap this central area:

(1) Technical and technological base to solve information problems;

(2) Information transfer characteristics;

(3) Knowledge of group dynamics;

(4) Higher education culture and environmental contexts; and

(5) Communication theory and application to information repackaging.

SLA's "Management" category overlaps with their other categories of "Provision of information" and "evaluation and measurement." Four of the Woodsworth & Lester categories are in this conceptual area:

(1) Skill in evaluating information;

(2) Willingness to make information decisions;

(3) Information policy issues; and

(4) Understanding the university political environment.

Taylor's categories of "Systems and Services" and "Information Technologies" are spanned by SLA's more general "Technology" category.

SLA's "Information Resources" category substantially overlaps the Taylor categories of "Intellectual Technologies," "Availability of Data," "Information and Knowledge," and "Information Use Environments." The Woodsworth & Lester categories of "Information Needs Analysis" and "Changing Nature of the Generation, Production, and Distribution of Information" have much in common with the "Availability"... area.

Taylor's "Economics" category, a key element in his concept of "Value-added Processes in Information Systems," is supported by one of the Woodsworth & Lester categories—"Impact of Economics"—and partially represented by the SLA's "Evaluation and Measurement" category. The underlying concerns of this category are allocation of resources, cost accounting, information resources auditing, an understanding of needs, options, and costs, and ways of deriving rough cost and benefit figures—in the words of the Industrial Technical Information Manager's Group, a "sense of what is takes to run a business successfully."[18]

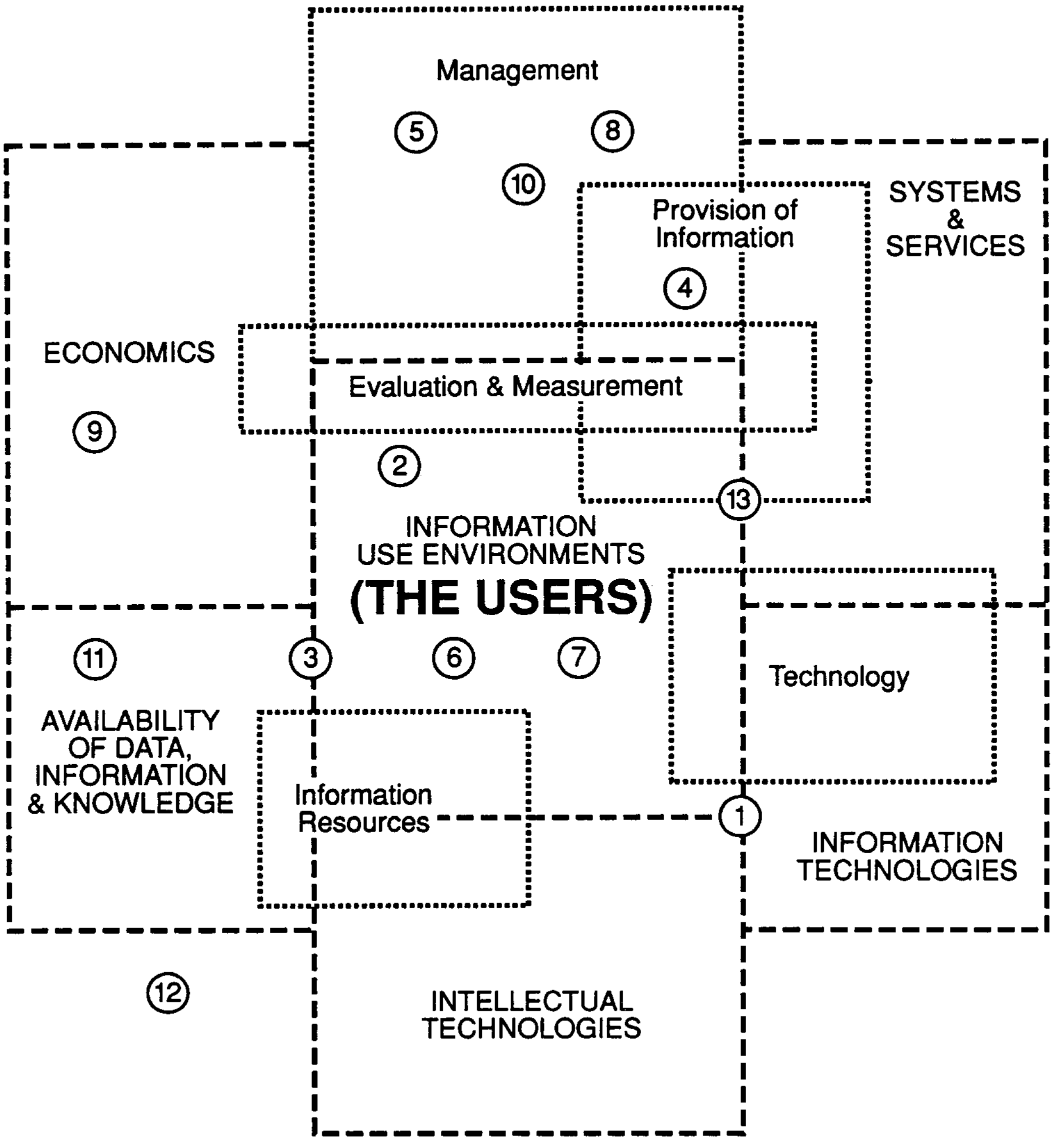
Woodsworth & Lester include the category of "Instructional Design and Adult Education" which does not seem to have any equivalent in either the Taylor conceptualization or the SLA *Statement*. Although some special libraries do support the continuing education of their clientele through provision of textbooks, video-taped courses, and self-study publications, this activity is not as central to the overall operation as it is in the academic setting.

A three-dimensional model would also include the attitudinal and behavioral characteristics that have been emphasized as essential by many commentators, including the Industrial Technical Information Manager's Group who created the following list of employer preferences for characteristics of information professionals in October 1988.[19] Among the traits they are looking for are:

- customer focus;

- communication skills;

Figure 1: Carving Up Library/Information Science



CAPITAL LETTERS and – – – – – boundaries: Taylor categories.
Upper & lower case letters and ·············· boundaries: SLA categories.
(numbers): Woodsworth & Lester categories (see text).

- sense of humor;
- flexibility (preferred to a strong technical background);
- a good grounding on how to exploit information sources of many origins;
- understanding and ease in dealing with information hardware and software;
- solid-background in an industry-oriented subject;
- sense of what it takes to run a business successfully.

Miriam Tees also found that somewhat the same qualities were valued when she did her SLA-sponsored survey:

> "Many people commented on the fact that the type of person is more important than the skills and knowledge that [the] individual learns in schools. This is reflected in the answers to the questionnaire, particularly, for example, in looking at the "top ten" items... These respondents call for people who are able to work with others—the public as well as staff—and who exhibit an outgoing personality, flexibility, curiosity, and the attitude of service."[20]

Just how realistic it is to expect the educational process to influence the domain of attitudes and professional behavior of students, let alone personality, is questioned by Clough and Galvin.[21] There are limits to the transformations that education can effect, but exposure to professional values and study of the cognitive and behavioral aspects of human beings and the process of information seeking and use should have an effect on the attitudes of students. Ideally, the process of education should transform them into professionals with the qualities sought by employers, with the provision that some of the qualities are personal characteristics a student brings to the profession—a sense of humor, for example, can be encouraged but not taught.

Again, the conceptualization illustrated by the graphic provides a framework for thinking about the common ground of formal education for library and information management. The actual spatial location of concepts, size of the boxes, overlaps, adjacencies, etc. are, of course open to debate and refinement. Such a conceptual map might help overcome the problems of terminology and categorization that plague discussion of special librarianship education, move beyond the struggle by defining exactly what constitutes the field of study, and avoid "fragmenting our profession...into a series of educational specializations."[22] If statements of all educational objectives and model curricula could be placed within a commonly accepted landscape, we could more easily understand differences of emphasis and avoid errors of omission.

Suggested Additions to the SLA *Statement*

In the SLA *Statement*, users and their needs are subsumed under other rubrics. But understanding human thought processes and human information seeking behavior, both individually and collectively, is at the heart of a "specialized" library/information service. The ability to analyze and meet verbalized and non-verbalized information needs and to interact effectively with users is a fundamental requirement of the educational process for special librarians. By not emphasizing this aspect, as well as the whole area of interpersonal communications, in their *Statement*, SLA appears to be minimizing the importance of this focus.

Resources

The SLA *Statement* is silent on the topic of resource knowledge needed by special librarians. Is it important for beginning professionals to be familiar with and know how and when to use the core resources in specific subject areas, e.g., science and technology, business and economics? Is it important for them to understand the realm of government documents? Or to be able to identify and use the world's major research collections? Or is it more important to understand "the structure of the disciplines and how information is generated, organized and used within them?"[23]

Professional Standards

Librarianship is a service profession and is responsible to its clientele for the quality and appropriateness of its service. It is important for special librarians, therefore, to be imbued with high standards of practice and sensitivity for ethical considerations of service. The responses to the Tees survey rated both professional ethics and an attitude of service very highly (83.1% and 92.3% respectively).[24] The SLA *Statement* assumes perhaps, that both topics are being taught successfully in the current educational programs and do not have to be mentioned specifically. But special librarians represent the profession to non-librarians in their places of employment, sell themselves daily as providers of reliable and professional services, and have expertise in such areas as copyright and information policy. This area is too fundamental to be neglected.

Telecommunications and Networking

The SLA *Statement* emphasizes computer competencies but does not mention telecommunications and networking specifically. Since access is becoming more important than possession,[25] the means by which access can be made to remote information is increasingly important and special librarians should probably be conversant with various technologies involved with telecommunications between computers, including networking computers together to share capacity, files, printers, etc. Networking technologies include physical communication links, software that delivers information over these links, services such as electronic mail, and "affinity group" links such as APRANET, BITNET, and ALANET.[26] Telefacsimile is also within this realm, a technology that is becoming commonplace.

Networking in the sense of the sharing of materials and online files of records and expertise is also very important to special librarians who must often access other collections and sources of expertise to meet local needs for information; it is essential to librarians who often work alone in a one-person library. Should they be aware of the options and benefits and barriers to participation?[27]

Research Capability

Many LIS programs include courses on research in their curricula. For example, one of Columbia's required courses is "Introduction to Research in Library and Information Science." These courses usually have two goals: first, to enable librarians to be intelligent consumers of research information and, second, to enable librarians to plan and carry out field-based research in support of system and service planning and evaluation. A third value of such courses is an understanding of the research process that will be helpful in providing information services to those engaged in research activities. To quote Pat Molholt:

> "(Research-mindedness) is a perspective one brings to the profession, whether practitioner or educator, that values well-formed questions, insists on defined methods, and feels a responsibility to share results .... Such a disciplined spirit of inquiry does not just happen. It must be cultivated, encouraged, and eventually insisted upon ....Until the concept is a natural part of the whole profession, librarians and educators will remain excessively critical of each other rather than expanding the common ground that defines the profession."[28]

In a special library setting, investigation of user needs, cost/benefit analysis of systems and services, impact of planned or implemented services, justification for existing or planned expenditures, etc., are natural areas for research methodologies.

Direct participation in the education program by special library practitioners

In addition to the accreditation process discussed above, there are other opportunities for special librarians to influence the educational process. These include supervising field work in special library settings, teaching courses on an adjunct basis or giving occasional presentations, and undertaking reciprocal or joint research and consulting activities. Also important is the role that practitioners can play in recruiting to the professional those who exhibit the equalities we need. This role has been promoted over and over in the literature of special librarianship; perhaps SLA could encourage such participation by recognition of the contributions beings made by SLA members and by incorporating the importance of supervised field work and interaction with practicing librarians in their *Statement*.

Access to computer equipment, software, electronic media, and online files

The SLA *Statement* could include a recommendation that MLS students have access to adequate computer resources, software, electronic media, and online files. Hands-on experience with supervision is probably one of the most valuable contributions that library and information science schools can make to the special librarian's preparation for the job market.

Summary

The Special Libraries Association has taken a major step toward providing effective guidance to LIS educators and to LIS students who plan to practice their profession in a special library setting. The *Position Statement on Graduate Education* of April 1988 is not a complete statement of the ideal scope and content of library education, but rather a set of recommendations for the enhancement of present LIS education programs. The educational preferences of working librarians and the preferences of industrial managers support the SLA recommendations, but also emphasize that personal characteristics and attitudes are very important. Comparison of the *Statement* with a current vision of the future academic library and with Taylor's education recommendations shows that there is the possibility of common educational ground with the education needed for academic librarians and other LIS professions.

SLA might want to make an even stronger statement on education by addressing the issues discussed here; namely, formulating a fuller recommendation for special library educational objectives for MLS programs, influencing the accreditation process, requesting special library program plans from accredited programs and distributing them as a packet on request, and presenting the special library perspective in the framework of other views of the ideal library/information science education with the focus on the user and the user's environment and the professional competencies, skills, and attitudes necessary for the practice of librarianship. ■

Acknowledgements

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Appendix

Special Libraries Association Position Statement on Graduate Education

Introduction

Special librarians must meet a set of professional demands requiring competencies and skills that are not required in other library settings. The Special Libraries Association agrees that the competencies, skills, and attitudes derived from an accredited MLS program are important in any information environment. However, SLA is concerned that many library schools' curricula do not offer the type or the range of educational experiences necessary to prepare students for careers in special librarianship.

Education for special librarianship falls into two distinct categories: 1) subject specific and 2) library/information related. Although subject-specific knowledge is critical in most special library environments, the Association recognizes that in-depth subject education is outside the realm of library education and must be acquired through other degree programs.

This statement is concerned with library/information education only, specially those areas of current curriculum which require expansion or modification to meet the educational needs of potential special librarians.

Areas of concern include: 1) Provision of Information Services, 2) Technology, 3) Management, 4) Information Resources, Classification, and 5) Information Service/Product Evaluation. While these broad subjects are often included in library school curriculum, instruction may not include or sufficiently emphasize the components of these subjects that are critical to special librarianship.

1. Provision of Information Services

The ultimate goal of special librarianship is to provide customized information services that meet the requirements of the parent organization in the most cost-effective and efficient manner possible. In special libraries there is less emphasis on functions such as acquisitions, cataloging and collection development, and greater emphasis on the provision of active services in immediate response to client needs.

Typical special library services that are not usually performed in traditional library settings include: a) packaging of information to meet specific demands, b) selective dissemination of information, c) analysis and interpretation of information, d) selection, configuration and evaluation of individual systems to meet client needs, e) development and delivery of new services as client and external demand requires, f) design and development of information "products," and g) exhaustive database searching. Greater emphasis must be placed on the following knowledge areas/competencies: skills and methodologies for project research, systems analysis and design, management/administration, problem definition and solution, and decision-making.

2. Technology

The impact of computer and telecommunications technology on the information environment has dramatically changed the way special librarians work. As clients have increasingly emphasized the need for immediate response to information requests, special librarians have optimized the use of advanced technologies.

To a far greater extent than other librarians, special librarians rely heavily upon various computer and electronic technologies, such as online/telecommunications systems, magnetic disk and tape, video disk and laser optical disk to capture, store, and deliver information.

Knowledge of the variety of systems available, the capabilities and limitations of each, and the compatibility among different systems is essential. Competency in systems analysis and design, and advanced knowledge of computer science are critical as today's special librarian must be able to plan and implement technological solutions to the information problems of the parent organization.

3. Management

To a far greater extent than other librarians, special librarians are placed in management positions early in their careers. In these positions, they must excel in both general business management and in management of the information activities and resources of the parent organization.

The theories and principles of general business management and organizational behavior are key knowledge areas for special librarians as they must develop a comprehensive understanding of the parent organization, including its mission, goals, policies and procedures, overall structure and key personnel. They must also be able to communicate and work with other managerial personnel in various functional areas of the institution and at different levels in the organizational hierarchy.

To prepare special librarians for general management and information management roles, library schools must place greater emphasis on communications, human resources issues, planning, budgeting and finance, marketing, cost effective performance, productivity, profitability, and leadership.

4. Information Resources

Special librarians are concerned with the identification, selection, and acquisition of the information resources needed by the library's clients. They need to be sensitive to the parent organization, have knowledge of the current collection, know how to assess its strengths and weaknesses and develop it to insure its usefulness, and be aware of opportunities for resource sharing and cooperation with other libraries.

Once the necessary information has been identified and obtained, it needs to be as accessible as possible. Methods of classification and organization of information may differ from one special library to another due to the specific nature of the collection and degree of automation in use. Increasingly, information is being stored and accessed through use of electronic formats. For this reason, database design/construction and thesaurus development have become important skills.

Because special librarians still collect, organize and classify traditional information resources, knowledge of current cataloging, classification, indexing and abstracting methods is also important.

5. Information Service/ Product Evaluation

Special libraries are user-driven. Immediate response to clients' requests is the usual norm. Accurate evaluation of all aspects of the provision of information service/product is vital.

The various methods of measurement and evaluation, particularly those related to cost/ benefit, are essential knowledge areas for special librarians. Evaluation will become an increasingly important tool as they are confronted with the need to justify the library's existence and charged with recovering costs and producing profits from the information resources of the parent organization.

Conclusion

These five subject areas are key components in the education for special librarians. To prepare students for special libraries careers, greater emphasis must be placed on knowledge of management, technology, provision of information services and evaluation techniques, as indicated above. Without greater proficiency in these areas, graduates of accredited MLS programs will not be adequately prepared for the professional demands of special librarianship. ■

Research Activity

Special Librarians to the Core: Profiling with the MBTI

by Tobi A. Brimsek (INTJ) and Dolores Leach (ENFP)

In March 1990, 25% of the SLA membership was selected at random to participate in a profiling project using the Myers-Briggs Type Indicator (MBTI). Form "G" of the MBTI was administered to 2,716 SLA members and associate members by mail with the assistance of Dolores Leach, Professional Resources, Inc., a human resources consulting firm. By the deadline date of April 5, 1990, 1,413 responses were received, providing a response rate of 52%.

The MBTI is an instrument which can indicate:

- Where (inner or outer world) individuals prefer to focus their attention and energy (Introversion—concept and ideas/Extroversion—people and things);
- How individuals acquire information (Sensing/Intuition);
- How individuals make decisions (Thinking/Feeling); and
- How individuals deal with or orient themselves to the outer world (Judgment/Perception)

In each of these four dimensions an individual has preferences. Through the use of the Myers-Briggs instrument, those preferences can be revealed. Within the Myers-Briggs typology, there is no "right" or "wrong" way to be. Each of the four dimensions contributes to the profile as a whole.

This particular project was initiated to formulate a perspective on SLA members through the MBTI and to determine if there is a common core linking the group of individuals that comprise the Special Libraries Association membership.

What the data do reveal is that despite the apparent diversity of the membership in terms of type of institution/business served, subject matter, and specific job roles, there appears to be several dominant elements characteristic of the membership. Examining those elements or preferences may assist in understanding what has brought these individuals to their current career paths.

The purpose of this article is to discuss the MBTI data in terms of a collective description of the membership along with the significance of those dominant profiles. Naturally, as in any profession, all 16 typologies have some representation. This article will focus on the four most common typologies among the SLA membership sample. Figure 1 illustrates the group profile distribution.

Before discussing the profiles themselves, it would be helpful to look at each of the four elements comprising the profile and the relationship of those traits of the SLA data to the population at large.

Table 1

	General Population[1]	SLA Data
Introversion	35%	65%
Extroversion	65%	35%
Sensing	68%	43%
Intuition	32%	57%
Thinking	48%	65%
Feeling	52%	35%
Judgment	55%	68%
Perception	45%	32%

Several observations about these data can be made. Study participants show a direct reversal of the introversion/extroversion distribution of the general population. It should be noted that a preference for introversion, implying that your energy is drawn from the world and consolidated within, does not preclude the fact that you may have mastered the *skills* of extraverting. Preference implies the natural flow of energy. Introversion, in this case moving inward to the world of concepts and ideas, may be used in conjunction with the learned skills of extroversion, i.e., responding to outer environment, sociability, and ease of communication. However, someone who prefers introversion, although skillful in extraverting, will encounter a significant degree of energy depletion if they do not replenish in ways introverts prefer.

Another clear differentiation from the population at large is on the Sensing/Intuition scale. There are two ways of perceiving information: Sensing and Intuition. Those who prefer sensing depend directly on their five senses for gathering information. They are primarily interested in actualities and are practical, realistic, and tend to focus on the immediate experience. Those who prefer intuition are mainly interested in possibilities; they listen for contributions from the unconscious that refers to perception of possibilities, meanings, patterns, and relationships by the way of insight. The focus is often on possibilities relating to the future.[2]

The most dramatic difference, however, is in the Thinking/Feeling scale. There are two ways of judging or making decisions about the information perceived. Thinking is the function that links ideas together by making logical connections. Thinking relies on the principles of cause and effect and tends to be impersonal. Feeling is the function by which one comes to decisions by weighing relative values and merits of the issues. Feeling relies on understanding of personal values and group values; it is more subjective.[3]

The data related to the Thinking/Feeling scale should be considered in light of some additional facts. In the general population, 2/3 of all males show a preference for Thinking, while 2/3 of all females show a preference for Feeling. Eighty-eight percent of the study participants are female. The coupling of this fact with the Thinking/Feeling scale results illustrate how significant that difference is between the SLA study participants and the population at large. There are many more females on the thinking side of that scale in the SLA study than in the general population. Figures 2 and 3 illustrate the profile distribution within the SLA participant group by a male/female breakdown.

There is some difference on the Judgment/Perception scale that does not appear to be dramatic. In the Judging attitude, a person is concerned with making decisions, seeking closure, planning operations, or reorganizing activities. They strive to manage events and circumstances around them. In the perceptive attitude a person is attuned to incoming information and appears in their outer behavior to be curious, adaptive, spontaneous, flexible, and open to new information and changes. They strive to understand the life around them.[4]

Having described and discussed the distribution of the different scales of preference, it would be useful to examine the dominant profiles among the study participants. The most common profile is ISTJ (17.41%), with INTJ (14.37%) closely behind. Following are ENTJ (8.85%) and INTP (8.49%). Combined, these four profiles contain the distribution of almost half of the study participants. Following are highlights of the characteristics of each of these profiles:

Figure 1 All SLA Member Survey Participants

N = 1413

SENSING THINKING	SENSING FEELING	INTUITION FEELING	INTUITION THINKING	
ISTJ N= 246 %= 17.41 ■■■■■■■■■■■■■■■■■	**ISFJ** N= 106 %= 7.50 ■■■■■■■■	**INFJ** N= 83 %= 5.87 ■■■■■■	**INTJ** N= 203 %= 14.37 ■■■■■■■■■■■■■■	JUDGMENT / INTROVERSION
ISTP N= 45 %= 3.18 ■■■	**ISFP** N= 24 %= 1.70 ■■	**INFP** N= 89 %= 6.30 ■■■■■■	**INTP** N= 120 %= 8.49 ■■■■■■■■	PERCEPTION / INTROVERSION
ESTP N= 17 %= 1.20 ■	**ESFP** N= 18 %= 1.27 ■	**ENFP** N= 75 %= 5.31 ■■■■■	**ENTP** N= 61 %= 4.32 ■■■■	PERCEPTION / EXTRAVERSION
ESTJ N= 98 %= 6.94 ■■■■■■■	**ESFJ** N= 48 %= 3.40 ■■■	**ENFJ** N= 55 %= 3.89 ■■■■	**ENTJ** N= 125 %= 8.85 ■■■■■■■■■	JUDGMENT / EXTRAVERSION

Note: ■ = 1% of sample sex.srt

	N	%
E	497	35.17
I	916	64.83
S	602	42.60
N	811	57.40
T	915	64.76
F	498	35.24
J	964	68.22
P	449	31.78
IJ	638	45.15
IP	278	19.67
EP	171	12.10
EJ	326	23.07
ST	406	28.73
SF	196	13.87
NF	302	21.37
NT	509	36.02
SJ	498	35.24
SP	104	7.36
NP	345	24.42
NJ	466	32.98
TJ	672	47.56
TP	243	17.20
FP	206	14.58
FJ	292	20.67
IN	495	35.03
EN	316	22.36
IS	421	29.79
ES	181	12.81
ET	301	21.30
EF	196	13.87
IF	302	21.37
IT	614	43.45
S dom	387	27.39
N dom	422	29.87
T dom	388	27.46
F dom	216	15.29

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ISTJ—"Extremely dependable...complete realistic and practical respect for the facts...accept the responsibility, often beyond call of duty...thorough, painstaking, systematic, hard-working and careful with particulars and procedures...often choose careers where their talents for organization and accuracy are rewarded ...They often move into supervisory and management roles."[5]

INTJ—"...relentless innovators in thought as well as action...problems only stimulate them...most independent of all types... place high value on competence...determination, perseverance and will drive others almost as hard as themselves...boldness of their intuition may be of immense value in any field..."[6]

ENTJ—"...like to think ahead, organize plans, situations, and operations related to a project...systematic effort to reach their objectives on schedule...little patience with confusion or inefficiency...think conduct should be ruled by logic...mainly interested in seeing the possibilities beyond what is present, obvious, or known...often found in executive jobs where they can find and implement new solutions...interest in the big picture."[7]

INTP—"...logical, analytical, and objectively critical...organize ideas and knowledge rather than situations or people, unless they must for the sake of their work...quite adaptable so long as ruling principles not violated...main interest lies in seeing possibilities beyond what is present, obvious, or known ...quick to understand and their intuition heightens their insight, ingenuity, and intellectual curiosity..."[8]

It is evident from these profiles that there is a strong preference for the NT combination. The NT preference reflects qualities of visionaries and architects of the future. The NT can always look to change for the better. They are risk-takers, they ask *why*, and they readily see the big picture. NTs are competency driven. They are the strategic planners and researchers.[9] Juxtaposed to NT preference is the ST preference which portrays a strong, practical, matter-of-fact approach. The ST asks *how*.[10] Both the NT and ST approaches are characterized by an ordered way. These dominant preferences create a balance between those who create the rules (INTJ side) and those who follow and maintain the rules (ISTJ side).

Also common to 3/4 of these dominant profiles is the judgment preference. This element reveals a decisive, planful, action-oriented preference revealing a direct contrast with the counterpart of the scale, perception, which demonstrates an adaptive, curious, open, continuous taking in of data. It should be noted that perception is preferred in only one of the four dominant profiles revealed in the study. Though as stated earlier, as in any profession, all 16 profiles are represented to some extent.

This study is not unique in terms of examining librarians or other occupations/professions as a group. A data bank of more than 250,000 MBTI records exists at the Center for Applications of Psychological Type(CAPT) in Gainesville, FL Currently they maintain 267 records in which "librarian" is the listed occupation. These data were submitted to CAPT for scoring between June 1971 and June 1984. The dominant profile from that particular group is ISFJ (19.10%).[11] Characteristics of the ISFJ include such traits as "...extremely dependable...complete realistic, practical respect for facts...thorough painstaking, hardworking with particulars and procedures...perseverance...concern for accuracy and organization..."[12] ISFJ is also perceived as the most supportive of the 16 typologies, with a primary desire to be of service to others.

Another very specific study of academic library directors in the Commonwealth of Virginia, an unpublished dissertation by John Tyson, reveals that within the group of the 70 study participants (34 female and 36 male) the most common profiles are ISTJ (20.90%), INTJ (14.93%), ENTJ (11.94%), and ESTJ (11.94%). No significant difference shows up in comparing the male versus female data.[13] Notably, three of the four most common profiles in this academic library director study parallel the SLA data. The value in sharing these related data

Figure 2 SLA Member Survey Participants—Male

N = 1247

	SENSING THINKING	SENSING FEELING	INTUITION FEELING	INTUITION THINKING	
	ISTJ N= 205 %= 16.44	**ISFJ** N= 101 %= 8.10	**INFJ** N= 76 %= 6.09	**INTJ** N= 164 %= 13.15	JUDGMENT / INTROVERSION
	ISTP N= 43 %= 3.45	**ISFP** N= 20 %= 1.60	**INFP** N= 83 %= 6.66	**INTP** N= 110 %= 8.82	PERCEPTION / INTROVERSION
	ESTP N= 15 %= 1.20	**ESFP** N= 18 %= 1.44	**ENFP** N= 66 %= 5.29	**ENTP** N= 52 %= 4.17	PERCEPTION / EXTRAVERSION
	ESTJ N= 89 %= 7.14	**ESFJ** N= 46 %= 3.69	**ENFJ** N= 47 %= 3.77	**ENTJ** N= 112 %= 8.98	JUDGMENT / EXTRAVERSION

Note: ■ = 1% of sample sex.srt

	N	%
E	445	35.69
I	802	64.31
S	537	43.06
N	710	56.94
T	790	63.35
F	457	36.65
J	840	67.36
P	407	32.64
I J	546	43.79
I P	256	20.53
E P	151	12.11
E J	294	23.58
S T	352	28.23
S F	185	14.84
N F	272	21.81
N T	438	35.12
S J	441	35.36
S P	96	7.70
N P	311	24.94
N J	399	32.00
T J	570	45.71
T P	220	17.64
F P	187	15.00
F J	270	21.65
I N	433	34.72
E N	277	22.21
I S	369	29.59
E S	168	13.47
E T	268	21.49
E F	177	14.19
I F	280	22.45
I T	522	41.86
S dom	339	27.19
N dom	358	28.71
T dom	354	28.39
F dom	196	15.72

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Figure 3 SLA Member Survey Participants—Female

N = 166

SENSING THINKING	SENSING FEELING	INTUITION FEELING	INTUITION THINKING	
ISTJ N= 41 %= 24.70 ■■■■■■■■■■ ■■■■■■■■■■ ■■■■■	**ISFJ** N= 5 %= 3.01 ■■■	**INFJ** N= 7 %= 4.22 ■■■■	**INTJ** N= 39 %= 23.49 ■■■■■■■■■■ ■■■■■■■■■■ ■■■	JUDGMENT / INTROVERSION
ISTP N= 2 %= 1.20 ■	**ISFP** N= 4 %= 2.41 ■■	**INFP** N= 6 %= 3.61 ■■■■	**INTP** N= 10 %= 6.02 ■■■■■■	PERCEPTION / INTROVERSION
ESTP N= 2 %= 1.20 ■	**ESFP** N= 0 %= 0.00	**ENFP** N= 9 %= 5.42 ■■■■■	**ENTP** N= 9 %= 5.42 ■■■■■	PERCEPTION / EXTRAVERSION
ESTJ N= 9 %= 5.42 ■■■■■	**ESFJ** N= 2 %= 1.20 ■	**ENFJ** N= 8 %= 4.82 ■■■■■	**ENTJ** N= 13 %= 7.83 ■■■■■■■■	JUDGMENT / EXTRAVERSION

Note: ■ = 1% of sample sex.srt

	N	%
E	52	31.33
I	114	68.67
S	65	39.16
N	101	60.84
T	125	75.30
F	41	24.70
J	124	74.70
P	42	25.30
I J	92	55.42
I P	22	13.25
E P	20	12.05
E J	32	19.28
S T	54	32.53
S F	11	6.63
N F	30	18.07
N T	71	42.77
S J	57	34.34
S P	8	4.82
N P	34	20.48
N J	67	40.36
T J	102	61.45
T P	23	13.86
F P	19	11.45
F J	22	13.25
I N	62	37.35
E N	39	23.49
I S	52	31.33
E S	13	7.83
E T	33	19.88
E F	19	11.45
I F	22	13.25
I T	92	55.42
S dom	48	28.92
N dom	64	38.55
T dom	34	20.48
F dom	20	12.05

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from the CAPT database as well as from the Tyson dissertation is to provide a more comprehensive approach, as well as related data to the SLA study.

As important as considering all available data on librarians from the MBTI perspective is looking at the SLA group profile in relation to other group/occupational profiles. Through the use of an occupational sort of the data in the CAPT database and the *CAPT-MBTI Atlas* it is possible to examine occupations aligned by similar distribution of MBTI typologies. Having reviewed the *Atlas*, it has been determined that some of the profile tables having a similarity to the SLA data include consultants, management consultants, management analysts, managers—Federal executives, computer specialists, systems researchers, and computer programmers, to name a few. These occupations share similar preferences revealed in this study. People are attracted to a certain field because of the nature of the work in that particular career. In addition, the skills utilized and the approach to problem solving and decision making is supported by others with similar preferences. Therefore, the preferences not only draw people but, in fact, reward and support certain behaviors, becoming somewhat of a self fulfilling process.

The SLA profile has shown some clear preferences and patterns among the SLA membership sample. The preferences appear with different strengths. For example, there is a repeated preference for introversion. With the introverts' preference for thinking then speaking coupled with a desire to understand concepts and ideas on a deeper level, it would make sense this preference shows up so clearly in the SLA profile. There is also a repeated preference for thinking. Interestingly, in the general population, 2/3 of those with a preference on the thinking side are male, yet this profession is predominantly female (The 1986 SLA membership study revealed that 85% of the membership is female.). One could hypothesize that one of the reasons females are drawn to the profession is the dominant aspect characterizing the profession—the preference for thinking—provides a comfortable environment for a preference less common among females in the population at large.

Clearly, understanding and interpreting these data is a complex process. In reality, the SLA study has been discussed on a most factual level. To provide a truly complete picture, it seems necessary to examine those elements which may be under-represented in the dominant profiles. Specifically, extroversion, feeling and perception are not strong preferences. However, as earlier stated, while these characteristics may not be part of the preference bank, that does not mean that they do not exist as learned skills and are used as such.

In summary, the MBTI has revealed a series of preferences which draw the SLA membership together. As a group they bring some very decisive strengths to the profession. They are the problem solvers, the visionaries, the architects of the future, the competency-based, decisive, adaptive, action oriented, curious, and matter-of-fact indiviudals. There is a clear weight on the analytical, logical, objective. These are the characteristics of a seemingly diverse but in fact, very homogeneous group of SLA members. The Myers-Briggs has provided a perspective on the collective self of the membership in terms of preferences and the strengths of those preferences. Such understanding leads to the best use of those strengths in a team setting, an organizational setting, or in the ongoing development of the profession.

For more information on the MBTI and its applications you may wish to consult *Gifts Differing*, by Isabel Briggs Myers with Peter B. Myers, published by Consulting Press, Palo Alto, CA: 1980, and *Type Talk*, by Otto Kroeger and Janet M. Thuesen, published by Delacorte Press: New York, 1988. These two works are suggested for their readability and applicability. *Gifts Differing* particularly presents the theoretical foundation for the use of the MBTI.

■

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SLA Biennial Salary Survey Preliminary Report

by Tobi A. Brimsek

1990 marks the inception of the biennial as opposed to triennial schedule of the SLA member salary survey. Every two years the Association will conduct an in-depth salary survey of its members. In the intervening years, SLA will continue to use an abbreviated instrument to survey a random sampling of 25% of the membership to obtain a brief update to the in-depth survey data.

The objective of the salary survey is to collect and disseminate salary data for use by employers, employees, students, and guidance counselors. It provides a means for SLA members to compare their salaries with those of their peers. Survey results provide salary data applicable to special librarians and information specialists in a wide range of work environments.

The 1990 survey is characterized not only by a change in frequency but also by a number of revisions which have been implemented to reflect the evolution of the field. For example, part-time hourly rates have been included for the first time, primary responsibilities have been reviewed and revised, budget ranges have been expanded, and a new section on employee benefits has been added. The key to these refinements has been to blend the new with the existing data to ensure comparability from survey to survey. As in the past, the 1990 survey includes data on library budget, industry type, job titles, and length of experience, to name a few of the variables.

Questionnaires were mailed to members and associate members on March 31, 1990. Of the 11,038 questionnaires mailed, 5,505 surveys were returned, providing a response rate of 50%. The complete results of the 1990 survey will appear as a separate publication entitled *SLA Biennial Salary Survey 1991*. This article presents some of the preliminary data which should be useful to SLA members, their employers, and the library and information community.

Table 1 reports the changes in mean and median salaries from April 1, 1989 to April 1, 1990 within the United States Census Divisions and Canada. The table presents the changes both in dollar amounts and in percentage increase or decrease.

The 1990 data indicate an overall median salary increase in the United States of $1,700 from $34,000 in 1989 to $35,700 in 1990. This represents a 5.0% increase over last year. The overall mean salary reflects a $1,594 increase from $36,212 in 1989 to $37,761 in 1990—a 4.2% increase.

A median salary increase in Canada of $2,360 from $39,000 in 1989 to $41,360 in 1990 took place. This represents a 6.0% increase since last year. The overall mean salary reflects a $2,931 increase from $39,760 in 1989 to $42,691 in 1990—a 7.3% increase.

All United States Census Divisions, except for the West South Central and Mountain, experienced median salary increases. The increases ranged from 19.7% to 4.0%. The Mountain area median decreased by 1.2% from 1989 to 1990, while the West South Central median decreased by 6.8% in the same timeframe.

All divisions, except for the West South Central and New England, reflect increases in the mean salaries ranging from 12.9% to 4.6% above 1989 figures. The New England area experienced a 3.7% decrease in mean salary while the West South Central experienced a 4.4% decrease in mean salary from 1989 to 1990.

Table 2 lists the salary distribution in rank order of median salaries for Canada and the nine United States Census Divisions. In comparing the median rankings with the 1989 salary survey update, among the nine United States regions, the Middle Atlantic, Pacific, and New England areas retained their respective ranks of one, two, and three. The South Atlantic moved up one position from five to four. East North Central moved up from sixth to fifth; East South Central moved up from ninth to seventh. The West North Central remained in eighth position in terms of median salary while the West South Central dropped from fourth to sixth and the Mountain region dropped from seventh to ninth position.

Table 3 lists salary distribution in rank order of median salaries for SLA's Canadian Chapters. These data were presented for the first time in the 1988 triennial salary survey draft report published in *Special Libraries*, Fall 1988. In 1988, ranking by median placed Western Canada in first position with a median salary of $37,413 (all Canadian salaries are reported in Canadian dollars); Toronto in second, with a median salary of $35,000; and Eastern Canada in third with a median salary of $34,331. Clearly, the 1990 data reflect a significant reordering of the Chapters in terms of ranking by median. In all of these Chapters, increases in median salaries are reflected over the period from 1988 to 1990, ranging from 11 to 21 percent. Increases are also reflected in the mean salaries of the Canadian Chapters. 1988 mean salaries were $37,247, $38,297 and $36,747 for Eastern Canada, Western Canada, and the Toronto Chapter, respectively. The increases in mean salaries from 1988 to 1990 range from 12 to 16 percent.

These data represent a preliminary report from the 1990 salary survey. In addition to historical and comparative data, the full survey will include a broad range of variables in conjunction with salary figures. The approximately

Table 1 1990 Median and Mean Salaries by Census Division in Rank Order of Percentage of Change in Median from 1989 to 1990 Including National Overall Figures

Census Division	Median			Mean		
	1989	% of increase (decrease)	1990	1989	% of increase (decrease)	1990
Canada*	$39,000	6.0	$41,360	$39,760	7.3	$42,691
Overall U.S.	34,000	5.0	35,700	36,212	4.2	37,761
East South Central	26,412	19.7	31,620	28,405	12.9	32,084
West North Central	28,987	8.3	31,398	32,040	4.9	33,628
South Atlantic	33,000	7.0	35,335	35,881	5.4	37,833
Pacific	35,556	6.8	38,000	37,071	6.6	39,519
West South Central	35,000	(6.8)	32,760	35,920	(4.4)	34,382
Middle Atlantic	36,348	5.0	38,189	38,891	4.6	40,694
East North Central	32,500	4.6	34,000	33,908	6.3	36,072
New England	35,000	4.0	36,421	40,226	(3.7)	38,775
Mountain	31,400	(1.2)	31,000	31,088	4.7	32,558

* Salaries reported in Canadian dollars. The exchange rate on April 1, 1990 was approximately Canadian $1.16=United States $1.00. On April 1, 1989 the exchange rate was approximately Canadian $1.19=United States $1.00.

Table 2 Salary Distribution by Census Division in Rank Order of 1990 Median

Census Division	Average Lowest 10%	25%	Median	75%	Average Highest 10%	No. of Res.	Mean
Canada*	$26,812	$35,334	$41,360	$48,000	$67,108	438	$42,691
Overall U.S.	22,008	29,891	35,700	43,000	64,272	4,498	37,761
Middle Atlantic	23,856	31,128	38,189	47,500	69,756	1,030	40,694
Pacific	23,549	31,308	38,000	46,000	62,222	777	39,519
New England	22,331	31,000	36,421	43,000	66,858	359	38,775
South Atlantic	22,654	29,600	35,335	43,000	66,760	762	37,833
East North Central	21,896	28,000	34,000	41,400	59,545	757	36,072
West South Central	20,209	28,000	32,760	39,000	56,047	267	34,382
East South Central	19,595	25,792	31,620	37,000	48,957	115	32,084
West North Central	19,560	26,500	31,398	38,000	58,660	250	33,628
Mountain	18,600	25,455	31,000	38,803	52,692	181	32,558

* Salaries reported in Canadian dollars. The exchange rate on April 1, 1990 was approximately Canadian $1.16=United States $1.00. On April 1, 1989 the exchange rate was approximately Canadian $1.19=United States $1.00.

Table 3 Salary Distribution by SLA Canadian Chapter in Rank Order of 1990 Median*

Chapter	Median	Mean	No. of Respondents
Eastern Canada	$41,693	$42,669	115
Western Canada	41,384	42,719	80
Toronto	41,000	42,565	219

* Salaries reported in Canadian dollars. The exchange rate on April 1, 1990 was approximately Canadian $1.16=United States $1.00. On April 1, 1989 the exchange rate was approximately Canadian $1.19=United States $1.00.

70-page full report will present separate tables for all United States and Canadian data.

The *SLA Biennial Salary Survey 1991* will be available from the Special Libraries Association Order Department for $25. ■

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A Report of the Survey of SLA Student Members

by Tobi A. Brimsek

Background

Inserted into the Fall issue of the *Student Group Newsletter* was a questionnaire directed to all SLA Student members. 1,111 questionnaires were mailed in mid-October 1989 and 347 completed questionnaires were returned providing a response rate of 31.23%.

The purpose of this study was to profile the student membership of the Special Libraries Association. The survey encompassed demographics, levels of awareness of SLA services, as well as students' perceptions and opinions about the field. The Office for Library Personnel Resources at ALA granted SLA permission for the use of two of the questions from the Library and Information Science Students' Attitudes, Demographics and Aspirations Survey" (Kathleen M. Heim and William E. Moen) in order to look at SLA student member responses in relation to the LISSADA overall response. The SLA student member survey instrument has been reproduced as an appendix to this report.

Demographics

Of the 347 respondents, 272 (78.4%) are female and 75 (21.6%) are male. Age distribution of the participants is reported as follows:

20–26	51 (14.7%)
27–30	55 (15.9%)
31–35	89 (25.6%)
36–45	97 (28.0%)
46–55	47 (13.5%)
Over 55	8 (2.3%)

Of the student members, 17.8% hold degrees higher than the bachelors degree. Specifically, 16.1% hold masters degrees while 1.7% hold doctorates. In reviewing the data on fields in which student members hold their highest degrees, the top five responses included: Social Sciences (19.0%), English, Journalism (17.3%), Liberal Arts (13.3%), Education (10.4%), and Biomedical Sciences (9.8%).

In terms of student status, 129 (37.2%) reported full-time status while 149 (42.9%) reported part-time status. 19.6% or 48 respondents are no longer students; they have completed their degrees. Proportionately, the greatest number of full-time students are in the 31-35 and 36-45 age ranges.

Work Status

Prior to beginning the MLS program 50.4% (175) of the respondents were working in a library/information center. Of those respondents, 25.7% were working in academic libraries, 18.9% in public libraries, 17.1% in corporate libraries, 8% in law libraries, 4.6% in medical libraries, 2.9% respectively in association, government and research libraries, 2.3% in school libraries, 1.7% respectively in museum/gallery libraries and newspaper libraries, and 1.1% in state libraries. 10.3% of the study participants working in libraries prior to beginning the MLS program did not respond to this question.

Of the 49.6% (172) who were not working in libraries prior to beginning the MLS program, the following indicates the types of activities they were involved in:

Working in Another Field	73.3%
In School	9.9%
Unemployed and Seeking Employment	8.7%
Unemployed and Not Seeking Employment	7.0%
No Response	1.2%

The other fields from which the respondents come reflect the diversity of previous experience and time spent in those fields from less than one year to up to 31 years. The respondents have come from fields such as sales, business, medical technology, nursing, finance, publishing, law, insurance, biomedical research, teaching, education administration, journalism, and computer programming, to name only a few. Clearly they bring to the library and information science field a wide range of previous experiences.

Sixty-eight percent (236) of the respondents are working in a library/information center while pursuing their degrees. The distribution of the types of work environments representing the top six most frequent responses are:

Academic Library	30.1%
Corporate Library	18.2%
Public Library	9.3%
Law Library	6.8%
Medical Library	6.4%
Government Library	5.5%
Research Library	5.5%

When asked whether employers paid for any portion of their tuition, 19.5% of the 236 respondents reported that their employers completely pay, 60.3% reported partial payment by employers, and 20.2% reported that their employers did not pay for any portion of their tuition toward their MLS degrees.

Looking to the Future

Student members were asked to rank their top three choices in terms of the type of library/ information center in which they would like to work after completing their degrees. Below are the top three choices for each of the rankings 1-3. In each case, corporate, academic, and research libraries are cited.

Ranking (Respondents)	Type of Library	%
1	Corporate	29.5
(339)	Academic	19.2
	Research	10.9
2	Research	20.7
(338)	Academic	15.4
	Corporate	15.1
3	Research	16.4
(335)	Academic	15.2
	Corporate	14.0

LISSADA

The "Library and Information Science Students Attitudes, Demographics and Aspirations Survey" (Kathleen M. Heim and William E. Moen) was designed to collect data on the masters students enrolled at U.S. ALA-accredited programs of library and information science in Spring 1988. 3,484 completed questionnaires were received and tabulated. Two questions from this study have been included in the SLA Student Member Survey. The first question is "Please indicate to what extent the following reasons are important to *your* choice of library and information science work." At the top of the list it was discovered that the 347 SLA student respondents ranked "To earn a living" as very important (46.1%), with "Personal skills that could be used" following as second with 42.7%, and "Access to the world's knowledge" and "Importance of information in society" tied for third with 42.4% of the respondents designating these reasons as "very important".

These data are slightly different than the response received on the LISSADA. Ranked at the top for the LISSADA participants was "Personal skills that could be used" followed by "To earn a living" and "Previous library work experience" in third place. Reasons ranked as *not* important by SLA student members include

"Alternative" (26.5%) and "Desire for career change" (25.9%). Interestingly, while "previous library work experience" is among the lowest ranked for SLA student members, it ranked among the highest reasons for the LISSADA participants.

The second question from the LISSADA study dealt with importance of specific factors in the selection of the student's first position after graduating. The data are not directly comparable as "type of work" was not an option in the SLA study. The top three factors ranked as very important by SLA student members are "Type of library and information center environment" (46.7%), "Geographical location" (45.5%), and "Salary/benefits offered" (35.7%). This compares with the LISSADA results reflecting these three factors ranked highest in the "very important" category: "Geographical location" (54.4%), "Type of work" (49.9%), and "Type of library or information environment" (41.9%).

Scoring tables for the two questions from the LISSADA have been developed to illustrate the average scores attributed by all of the respondents to each factor. These average scores are based on the rating scale of 1 to 5 with 1 = Not Important and 5 = Very Important.

Table 1 How Important Are the Following Reasons to Your Choice of Library and Information Science Work?

Personal skills that could be used	4.21	Teaching others how to access information	3.63
Importance of information in society	4.17	Previous library use/ research experience	3.59
To earn a living	4.11	Good job market	3.42
Access to the world's knowledge	4.04	Availability of jobs	3.41
To do research with and for others	4.03	Desire for career change	3.29
Variety of career opportunities	3.92	To supplement/complement another degree	3.12
Numerous and diverse areas of specialization	3.86	Previous library work experience	3.11
Opportunities to serve others and the community	3.85	Geographical mobility	2.88
Need for a marketable skill	3.75	To participate in political decisions/information policy formation	2.86
Opportunities for advancement	3.71	Alternative to teaching	1.86

Table 2 How Important Will the Following Factors Be When You Select Your First Position After Graduating From Library and Information Science School?

Type of library and information center environment	4.31	Opportunities for advancement offered by the position	3.78
Salary/benefits offered	4.12	Personal and family concerns	3.63
Geographical location	4.07	Sponsoring agency or parent institution	3.49
Challenge of the position	4.02	Status of the position	3.31
Subject specialty opportunities	3.84		

Professional Associations

The following chart indicates the professional affiliations (other than SLA) of the study participants. (The percentages tally to greater than 100% as multiple responses were permissible.)

American Library Association	54.5%
American Society for Information Science	12.4%
Medical Library Association	7.8%
American Association of Law Libraries	4.6%
Art Libraries Society of North America	2.0%
Society of American Archivists	1.4%
Music Library Association	.6%
Other	33.1%
No Other	26.2%

Some of the "other" organizations listed include the Canadian Library Association, state, local, and regional organizations, as well as the Association for Records Managers and Administrators (ARMA), The Catholic Library Association, etc.

Students and SLA

Students were asked how they became aware of SLA. Below is the distribution of responses from 317 of the participants.

Through coursework while pursuing MLS	35.0%
Through a co-worker in my library/info center	16.4%
Through faculty advisor	13.6%
Through an SLA brochure	12.6%
Through another student	8.2%
Through a friend	3.5%
Other	10.7%

Some of the "other" ways of becoming aware of SLA include through SLA publications, through SLA-sponsored programs/receptions at the students' schools, through the student chapter promotions/activities, through the investigation of librarianship as a career, and through SLA's scholarship program.

The students were asked to rank from 1-3 with 1 being the most beneficial, the direct benefits from their membership in SLA. Below is a list of the top five responses in each of the three rankings.

Number-One Benefit Rankings

Networking Opportunities	27.4%
Subscription to *Special Libraries*	23.6%
Subscription to *SpeciaList*	8.3%
Chapter Meetings	7.4%
Employment Clearinghouse/ Free Position Wanted	7.4%
Career Advisory Service	6.2%

Number-Two Benefit Rankings

Subscription to *Special Libraries*	15.8%
Networking Opportunities	13.4%
Subscription to *Specialist*	11.3%
Employment Clearinghouse/ Free Position Wanted	9.6%
Chapter Meetings	9.3%

Number-Three Benefit Rankings

Subscription to *Special Libraries*	15.4%
Networking Opportunities	13.6%
Student Rate for Resume Referral Service	9.4%
Subscription to *Specialist*	8.5%
Employment Clearinghouse/ Free Position Wanted	6.6%
Career Advisory Service	6.6%

The student members were also asked to indicate their levels of awareness of specific SLA services and programs. Over three-quarters of the respondents have attended or are familiar with SLA's Annual Conference. Forty-nine percent of the students are familiar with or have used the Resume Referral Service, 43.2% have used or are familiar with the Scholarship Program, and 40.4% of the respondents have used or are familiar with the Employment Clearinghouse. Both the Research Program and Special Programs Fund Grants have not been "used or participated in," but over one-half of the respondents are familiar with or have heard of Special Programs Fund Grants while 39.2% of the respondents are similarly categorized with regard to the Research Program. Research, the newest program area, is the least well-known followed by the Special Programs Fund Grants, Scholarship Program, Employment Clearinghouse, Resume Referral Service, and Annual Conference, respectively. It should be noted, however, that only 2% (7) of all respondents have never heard of the Annual Conference.

The MLS Degree

The survey included several open-ended questions. The first of these was concerned with the students' perceptions of the advantages of the MLS degree and what the degree would bring to their careers. Several repetitive themes ran through the responses. The MLS is perceived as an entree, an opportunity for a career, and the MLS provides needed skills and a knowledge base as well as the potential for career mobility, marketability, and flexibility. Other benefits attributed to the MLS degree include higher salary potential and professional status/credibility.

Career Goals

The students were asked to share their ultimate career goals. Responses received reflect the typical diversity within the special libraries community. The goals range from software procurement consultant to archivist to information broker to corporate library director to law library director to academic library director to library/information science faculty to CIO...

and many, many, other things. While some of the respondents had formulated their goals, others are still developing them. There is yet an element of the unknown in the development of their career paths. Clearly, many are still investigating and discovering the possibilities open to them and enjoying the flexibility afforded to them by this career choice.

SLA and Student Goals

Students also were asked how SLA can help them achieve the goals they have set for themselves. Specific SLA roles kept reappearing in the responses. Key among these are the networking opportunities afforded by SLA along with the employment and related services, i.e. salary survey, etc. SLA needs to continue to play the role of information provider regarding trends in the field. Continuing education, promoting the profession, the publications program, and conferences are also recurring responses. The roles defined by the students are those that SLA has continued to develop since its creation in 1909.

In summary, the survey has revealed a student membership that is "enthusiastically" approaching their career paths. Sixty-eight percent of the respondents are already working in the field while pursuing their degrees. As gleaned from the open-ended questions, there is a flexibility afforded by the MLS degree which is in turn a keystone to future challenges. ■

Appendix

SLA Student Member Survey
October 1989

The purpose of this survey is to profile the student membership of the Special Libraries Association. The survey encompasses demographics, levels of awareness of SLA services and perceptions and opinions students have about the field.

We urge all student members to participate in the study by completing the questionnaire below and returning it in the enclosed envelope to the Director, Research and Information Resources, SLA, 1700 Eighteenth Street, NW, Washington, DC 20009, by the deadline date of November 22, 1989.

1. Please indicate your sex by circling the number next to the appropriate response.

1 Female 2 Male

2. Please indicate the range which encompasses your current age by circling the number next to the appropriate range.

1 20-26	4 36-45
2 27-30	5 46-55
3 31-35	6 Over 55

3. Please indicate the degree(s) that you hold by checking the box in the appropriate column next to the corresponding field(s).

Please indicate <u>all</u> degrees held.

	Bachelors		Masters		Doctorate	
Biomedical sciences	☐		☐		☐	
Business,economics, commerce	☐		☐		☐	
Earth sciences	☐		☐		☐	
Education	☐		☐		☐	
Engineering	☐		☐		☐	
English, journalism	☐		☐		☐	
Fine and applied arts (art, architecture,music,theater,speech)	☐		☐		☐	
Foreign languages	☐		☐		☐	
Law	☐	JD	☐	LLM	☐	SJD
Liberal arts	☐		☐		☐	
Physical sciences	☐		☐		☐	
Philosophy, religion	☐		☐		☐	
Social sciences	☐		☐		☐	

4. Please indicate your student status by circling the number next to the appropriate response.

1 Full-time
2 Part-time
3 No longer student, completed degree

5. Were you working in a library/information center prior to beginning your MLS program? Please circle the number next to appropriate response.

1 Yes
2 No (If no, go to question 6)

5a. If yes, in what type of library/information center were you working? Please circle the number next to appropriate response and go to question 7.

01 Academic library	07 Medical library
02 Association library	08 Museum/gallery library
03 Corporate library	09 Newspaper library
04 Government library	10 Public library
05 Law library	11 Research library
06 Library of Congress	12 School library
	13 State library

6. If you were not working in a library /information center prior to beginning the MLS program, please indicate what you were doing by circling the number next to the appropriate response.

1 I was in school
2 I was working in another field
  2a. What field? ______________________________
  2b. How long were you in this field? ______________
3 I was unemployed and seeking employment
4 I was unemployed and not seeking employment

7. What is your status with regard to completing your MLS degree? Please circle the number next to appropriate response.

1 I am in my first semester
2 I am in my last semester
3 I am in process but in neither first nor last semester
4 I have completed my degree

8. Are you working in a library/information center while pursuing your MLS degree? Please circle the number next to the appropriate response.

1 Yes
2 No (If no, go to question 9)

8a. What type of library/information center are you working in while pursuing your MLS degree?

1 Academic library
2 Association/Foundation library
3 Corporate library
4 Government library
5 Law library
6 Library of Congress
7 Medical library
8 Museum/Gallery library
9 Newspaper library
10 Public library
11 Research library
12 School library
13 State library

8b. Does your employer pay for any portion of the tuition for your MLS degree? Please circle the number next to the appropriate response.

1 Not at all
2 My employer partially pays my tuition
3 My employer completely pays my tuition

9. What type of library/information center would you like to work in when you complete your MLS? Please rank your top 3 choices from 1 to 3, with 1 being the most preferred.

Rank only 3 items and use a number only once. Place the number in the blank space before the item.

___Academic library
___Association/foundation library
___Corporate library
___Government library
___Law library
___Library of Congress
___Medical library
___Museum/gallery library
___Newspaper Library
___Public Library
___Research Library
___School library
___State library

10. Please indicate to what extent the following reasons are important to your choice of library and information science work. Please circle the appropriate number.

	NOT IMPORTANT				VERY IMPORTANT
Access to the world's knowledge	1	2	3	4	5
Alternative to teaching	1	2	3	4	5
Availability of jobs	1	2	3	4	5
Desire for career change	1	2	3	4	5
Geographical mobility	1	2	3	4	5
Good job market	1	2	3	4	5
Importance of information in society	1	2	3	4	5
Need for a marketable skill	1	2	3	4	5

(continuation of question 10)	NOT IMPORTANT				VERY IMPORTANT
Numerous and diverse areas of specialization	1	2	3	4	5
Opportunities for advancement	1	2	3	4	5
Opportunities to serve others and the community	1	2	3	4	5
Personal skills that could be used	1	2	3	4	5
Previous library use/research experience	1	2	3	4	5
Previous library work experience	1	2	3	4	5
Teaching others how to access information	1	2	3	4	5
To do research with and for others	1	2	3	4	5
To earn a living	1	2	3	4	5
To participate in political decisions and information policy formation	1	2	3	4	5
To supplement/complement another degree	1	2	3	4	5
Variety of career opportunities	1	2	3	4	5

11. How important will each of the following factors be when you select your first position after graduating from library and information science school? Please circle the appropriate number.

	NOT AT ALL				VERY MUCH
Challenge of the position	1	2	3	4	5
Geographical location	1	2	3	4	5
Opportunities for advancement offered by the position	1	2	3	4	5
Personal and family concerns	1	2	3	4	5
Salary/benefits offered	1	2	3	4	5
Sponsoring agency or parent institution	1	2	3	4	5
Status of the position	1	2	3	4	5
Subject specialty opportunities	1	2	3	4	5
Type of library and information center environment	1	2	3	4	5

12. To what other (besides SLA) professional library/information organizations do you belong? Please circle the number(s) next to the appropriate response(s). You may have more than one response.

1 American Library Association
2 American Association of Law Libraries
3 American Society for Information Science
4 Art Libraries Society of North America
5 Medical Library Association
6 Music Library Association
7 Society of American Archivists
8 Other (please specify) ______________________
9 No other library/information organization

13. How did you become aware of SLA? Please circle the number next to the appropriate response.

1 Through another student
2 Through a friend
3 Through a co-worker in my library/information center
4 Through coursework while pursuing MLS
5 Through faculty advisor
6 Through an SLA brochure
7 Other (please specify)______________________

14. Below is a list of direct benefits of your student membership in SLA. Please rank the top 3 items that you find most beneficial to you. Rank only 3 items from 1 to 3 with 1 being the most beneficial. Use a number only once and place the number in the blank space before the item.

___Subscription to Student Group Newsletter
___Subscription to *SpeciaList*
___Subscription to *Special Libraries*
___Division affiliation (1 at no charge)
___Chapter affiliation (1 at no charge)
___Chapter/division newsletters and directories
___Annual membership directory
___Chapter meetings
___Student rate for continuing education courses
___Student rate for Annual Conference
___Group insurance program
___Product discounts
___Vote in Association elections
___Opportunity to hold Association appointive office
___Opportunity to hold chapter/division appointive office
___Employment Clearinghouse/Free position wanted posting
___Career advisory service
___SLA information services
___Voice in formulating SLA policies
___Student rate for Resume Referral Service
___Networking Opportunities

15. Please indicate your level of awareness of each of the following services and programs offered by SLA. Please circle the appropriate number.

	Used or participated in	Familar with but have not used or participated in	Heard of but not familar	Never heard of
a. Annual Conference	1	2	3	4
b. Employment Clearinghouse	1	2	3	4
c. Resume Referral Service	1	2	3	4
d. Scholarship Program	1	2	3	4
e. Special Programs Fund Grants	1	2	3	4
f. Research Program	1	2	3	4

16. What do you perceive as the greatest advantages of your MLS degree? What will this degree bring to your career? Where will this degree take you?

17. What do you perceive as your ultimate career goal? Please describe the type of position you would like including information on the type of organization, job title, number of staff etc. In other words, where do you want to be at the peak of your career?

18. How can SLA help you achieve the goals you have set for yourself?

Tobi Brimsek is Director, Research, Special Libraries Association.

On the Scene

Photographs: Interpretive and Instructional Strategies

by Shelley Arlen

■ While literature proliferates on the theoretical and practical aspects of bibliographic instruction in libraries, little attention has been paid to the strategies involved in analyzing non-book media. Photographs in particular are a medium that can offer a wealth of information to the student or scholar engaged in historical research. This article gives some principles to consider in the interpretation of historical photographs and suggests techniques for teaching these principles.

Last year marked the 150th anniversary of the introduction of the photograph, a document now firmly established as an important research tool. More and more, librarians and archivists are actively collecting, preserving, and providing access to photographic materials.

The library/archival professions as a whole, however, have been slow to take the same interpretive and instructional role toward photographic resources that is applied to other information sources. This is unfortunate, for photographic collections not only offer unique research opportunities but can also develop critical thinking skills, as well as serve as a public relations tool. The charm and nostalgia of historical photos make them ready attention-getters for even the most bored undergraduate or the busiest executive.

Hesitation in taking an instructional role is understandable. Photographs have a subjective element that, to the unpracticed eye, is difficult to define. The visual realm has an inherent and compelling power that is emotionally moving, but also causes intellectual suspicion; furthermore, most people are well aware that photography is as much an art as a science.

But photographs, like written texts, can be analyzed for meaning beyond their more apparent qualities. Visual interpretation is not necessarily difficult though it can be complex; it is essentially a task of learning what questions to ask about a photograph and what features to look for in answering these questions. While most people have not been trained in visual analysis, many of the principles involved are simply common-sense, which people usually follow at an unconscious level.

Responsible analysis and evaluation, however, require identifying and making explicit the unconscious assumptions people make about an image, as well as those assumptions, attitudes, and values implicit in the visual document itself. Such scrutiny combined with placing the photograph in a socio-cultural/historical context, can reveal a great deal about the people, life, and times of the period depicted—and perhaps about ourselves. While the following paper focuses primarily on the analysis of photographs in their social, economic, and historical context, other types of analysis (geographic, technological, psychological, artistic, etc.) are possible with other types of images.

To begin interpreting a photograph, it must first be described as specifically and concretely as possible. The more facts known about an image, the deeper an interpretation can be. Start with the basics, look at the details, study relationships, and end with a conception of the whole. It takes some experience to learn how to decipher visual codes, but once comfortable with this process, librarians and archivists can help others with their own interpretive discoveries. I will first discuss some of the general methods for analyzing photographs, then turn to some special problems photographs pose.

The Photograph as Artifact

The basics or "givens" of a photograph are the concrete and interrelated facts of its existence as a material artifact. These are the features that identify the object as a unique photograph, the objective data used to accession, catalog, and classify the item. Technical aspects include the kind of photographic process represented (daguerreotype, ambrotype, tintype, glass plate, albumen print, etc.), type of lens, and focus used. Topical aspects include date of creation, photographer, identification of time, place, person(s), and event.

The technical and topical facts are interrelated. Correct identification of the photographic process and photographer help in assigning or verifying a date or time period and sometimes the place of the photograph. For example, tintypes were common during the American Civil War, while the resin-coated print is a fairly recent technical development.

The kind of photographic process used also implies certain restrictions under which the photographer operated. These limitations influence what is seen in the resulting image and how the viewer sees it. Early daguerreotypes required up to one minute exposure time (depending on light and plate size) during which the subject could not move. Thus we see most subjects in stilted poses with sober expressions, a pose that, over time, became a standard even after exposure times were lessened.

The photo analyst should also determine if the item is an original or a copy. Some experience is needed, but one clue is the quality of the image. Quality depends, among other factors, on the type of camera, film, and paper used, but it may also indicate whether the photograph is an original or a copy. Negatives as well as prints can be duplicated. Each time a new negative is made of an existing image, the new generation of prints loses some of the quality of the original. A fuzzy image or one with "static" may be a third or fourth generation copy of a clear and sharp original. While a copy is not as useful as an original, it is often all that exists.

Check for signs of retouching or tampering. In a retouched photograph, the subject depicted has lost much of its historical validity, but a lot can be learned from analyzing the motives behind such alteration.

Who, What, When, Where, Why

Accurate identification of a photograph is as much a part of its preservation as its physical care. Some information may be part of the record, but other data can be inferred. Ideally, the individuals in the photograph are named and given tit!e, rank or some other attribute such as grandmother, sheriff, schoolteacher, or outlaw. The date and place should be noted, along with the event or reason for the photograph's occurrence: an historic meeting, a once-a-year celebration, a rite of passage (marriage, graduation), or a slice of daily life.

If possible, verify such information by other means—comparison with other photographs, written documents (contemporary town directories, newspapers), and interviews. Incorrect identification is one of the major hazards of photographic analysis. Photographers frequently buy (and occasionally pirate) the work of others. Photographs and studio-supplied frames are often switched, and information written on the back of a photograph could have been noted years after the event by someone with a faulty memory or who based the information on hearsay.

As with other archival materials, provenance is an important aid to the identification of photographs. Clues can come from the collection itself: dates, people, places, occupations, social status, ethnic affiliations, family relationships, issues mentioned in the manuscripts or in recorded histories of the time. Comparison with other photographs in the collection can yield information on the date, place, or photographer. Similarly, other materials collected by the institution can also provide clues: newspaper clippings, city directories, local histories, diaries.

When you work with photographs, you begin to get a feel for material culture and fashion—the period when hobble skirts were in vogue or when Ford Thunderbirds were introduced to the road. Street scenes offer a wealth of information in dating: store signs, fashions in clothing and vehicles, signs of recent or ongoing construction, paved or dirt streets, telephone poles, parking meters.

Other Factors

Photographs yield much more information than the basic facts needed to identify them for cataloging purposes; photographs can give the viewer facts about the level of technology available, lifestyle, social structure, customs, work relationships. The comparison of a series of related images can give much information about similarities and differences over time, geography, and social class.

Define the environment. Is the scene an interior or exterior view? Urban or rural? Desert or forest? Taken by day, by night, or in the studio? During what season? Certain aspects of our lives are chosen for us, others are the result of our own decisions. How have the people manipulated their environment and what does this tell you about them?

Photographs can also yield information on lifestyle—class, wealth, level of education, aspirations. Look for clues to the quality of life and signs of social status. As you accumulate details, inferences can be made about the relative prosperity of the scene and its inhabitants. Some signs will tell you that nonmaterial things were important to these people: books, music, art, a spiritual life.

Material wealth is measured in different ways by different people. A good crop year or a pasture full of fat cattle are signs of prosperity. A grim looking dug-out may have been simply a temporary home for the western settler out to make his family's fortune. What do the details tell you about the social class of the individuals? What values are implied by their possessions? Are the subjects generally happy or sad?

From photographs we can glean information on social structure and work relationships. Photos taken at community gatherings or in the workplace, and family photographs, can be especially revealing. Notice who takes the central, dominant position and who takes the subordinate positions. Are there differences in clothing? Some individuals may be wearing hats and jackets and others, uniforms. Who is the laborer and who the manager? What sexual dynamics can be inferred? Do the females take equal or subordinate positions?

Spatial relationships and body language can elucidate group dynamics. Proximity (touching, closeness, distance) is a visible element in social encounters that has ramifications for social alliances, intimacies and aversions.[1] However, one or two selective views cannot tell the whole story. An expression, gesture, or stance may be misleading. Psychological studies based on individual photographs should be done carefully.[2]

Patterns

Many research questions can only be answered by studying a series of related photographs, either of a certain genre (tourism, family, commerce, Native American culture, New York City slums, etc.), or those taken by a particular photographer. Collections kept by individuals, institutions, agencies or businesses, and family photograph albums can be especially rich sources.[3] Look for historical patterns of change in these series or collections of photographs. The repetition of certain features in a series can help verify or correct ideas about historical dynamics.

Patterned behavior can also be evidence of recurring social, cultural, or photographic conventions. It is because of shared conventions that we are able to identify many images even without knowing their provenance. Church confirmations, family portraits, weddings, high school graduations—all these are views familiar to us, images with their own iconography of props, postures, and clothing. Conventional behavior enables us to interpret these images far beyond their literal content.

Studio Portraits

With their standard backdrops and props, studio portraits are a great "democratizer" of the personal visual image, giving the appearance that everyone is equal. These are some of the hardest images to read, simply because of the fake environment and the possibility for false impressions. But a study of the clothing, poses, and props can provide insight into the subjects' lives. Notice the attire—the polished shoes of the town dandy, the workboots of the farmer. How do the individuals present themselves? How much of what is seen is real and how much facade to make a good impression? The impression made by a woman wearing a lace collar and a cameo brooch changes when we notice her ill-fitting bodice and ragged sash.

Poses

Studio photographs are generally more formal than snapshots. In the former, people tend to assume conventional poses. The exceptions—the candid, relaxed, or intimate portrait—on the other hand, tells us something about the subject and his/her relationship with the photographer. Perhaps they are relatives or friends, or perhaps the subject is an actor or other person selling him/herself to an audience.

Body language and group position can indicate relationships and social position. In Victorian family photos, fathers are frequently given the prominent position, indicating their dominance within the patriarchal family. But notice who might be wedged to the side almost out of the picture, who sits or stands, who touches and who are facing, and who has his/her back to another? All of these are factors suggestive of bonds and areas of social tension. These signs of the body must always be analyzed with care, since we all can have subjective, class, and cultural biases, but a sensitive viewer should remain alert to the possibilities.

Props

Determine if those objects given prominence in the photo—prayerbooks, dolls, a hunting rifle—are indeed status symbols belonging to the subject or, instead, are props provided by the photographer. This can be done by analyzing the photographer's larger body of work, checking to see whether these same props show up again and again. You may have biographical information on the subject that is helpful. Adults may pose with the tools of their trade or of their leisure time activities—needlework, sickle and hoe, gardening basket full of flowers—while children clutch favorite toys or a grammar and slate.

Information about a studio can be gained from the backdrop, flooring, and furnishings. A particular photographer's workplace may have been an established urban place of business, or merely a temporary and hastily-built studio, erected by an itinerant photographer. Again, the details tell a lot. Is the floor polished wood or sawdust? Is the backdrop straight and neat, or crooked, showing a gap between it and the floor? Is this a high-priced studio or one of the less-expensive varieties?

What is Missing?

Certain possible categories of photographs are difficult to find. The lack of particular views tells a lot about photographic technology, social conventions, and historical situations. Some subjects are simply taboo. Until recent!y, photographs of actual childbirth were rare, and views of authentic (rather than re-created) sacred ceremonies of Native Americans have been almost non-existent. If you do come across one of these rare kinds of photographs, determine who took it, how, and why.

Photographs Can Lie

Like other primary materials, photographs are selective in what they reveal, and they have both subjective and objective aspects. This subjectivity/objectivity spectrum is what makes photography an art as well as a science, and it means that the interpreter must remain alert for any signs of falsification or manipulation. Photographs are not objective witnesses; while they can be used for documentation, to "prove" that an event occurred, they can also lie or, by their selective nature, give us only "half truths."

The manipulation of reality can occur before or after a photograph is taken. Basically, there can be at least four agents of this manipulation: the subject himself, the photographer, the exhibitor who uses the photograph for a particular purpose, and the viewer. If someone other than the subject paid for the photograph to be taken, that person, too, has a role in the process of manipulation. Try to determine who has dominant control of what is finally seen.

At the time a photograph is taken, decisions are made on how the subject will present him/herself, the selection and framing of a site, what objects to include or exclude, and how the resulting photograph will be labelled. When studying an historical photograph, ask who has made these decisions and to what purpose?

For example, in depicting the poor, social reform photographers rarely took images of able-bodied men, thus echoing the conventional wisdom that healthy men were undeserving of charity[4] Some exhibitors and book publishers use reenactments for illustration without identifying them as such. The photographer and/or the exhibitor can, through carelessness or deliberate deception, identify the photograph incorrectly.

The photographer may pose his subjects with inappropriate props or in unnatural poses. Thus we see photographs of Cherokee men posed in war bonnets, Cheyennes with Indian pottery, Sioux men in Nez Perce beaded moccasins, a baby girl strapped in a boy's cradleboard. Matthew Brady rearranged bodies on Civil War battlefields for greater visual impact, and Farm Security Administration photographers selectively shot views of the dust bowl refugees that matched preconceived ideas of noble despair.

Technical creativity can also falsify images. Camera and lens settings and shutter speed are among the factors that determine what we see. Focus and depth of field can distort perception. A wide-angle lens can make things appear nearer than they actually are, and objects in the foreground or background can be made to disappear, depending on the focus.

In the darkroom, a technician can add to or eliminate selected items from the negative, cropping or dodging selected portions, or sandwiching negatives together. Edward Curtis was known to retouch his negatives, eliminating Anglo objects such as clocks or cookware from his views of Native Americans. In composite views, parts of photographs are cut out, combined in a montage, and re-shot, so the resulting image appears "real"—a child standing beside four-foot high tomatoes, or someone's neighbor posing with Abraham Lincoln. Modern technology has vastly improved the process of imagemaking and made it more accessible to the non-professional, yet it can pose hazards for the interpreter of photographs. For example, images stored in digital format can be manipulated, resulting in scenes that never existed. Reality, as captured in visual images, can thus be altered in ways that are virtually undetectable.

Intention

In analyzing photographs for meaning, it is important to determine the intentions of the subject, photographer, and exhibitor. Are these intentions the same or do they conflict? Is the photograph one of promotion and advertising, social reform, commemoration, or is it meant to be strictly a work of art? Is the subject aware of the photographer? Has he/she paid for this image? What social attitudes are being promoted—family life, work ethic, nationalism? What is the photographer's attitude toward his subject? Some of the earliest photographers travelled to "exotic" places like the South Seas and took photographs of young native girls in Western cheesecake poses, giving them a sensuality completely alien to their native cultures.

Robert M. Levine suggests that "the photographer's historical imagination or sense of vision enters each composed image"[5]. What messages are the subject, photographer, and exhibitor trying to get across? How successful are these efforts? Look for latent messages, signs, and messages that were probably not intended. The dramatic image of white-robed and hooded Klansmen gathered around a burning cross may inspire the fear intended, but it also reveals intolerance and limited social mobility for certain ethnic groups. Jacob Riis' photographs of the slums on New York City's Lower East Side were taken to document the abject poverty of urban immigrants and bring about an improvement in their living conditions. However, his images of the disheveled and idle poor also reinforced the negative stereotype of the immigrant as dirty and lazy.[6]

Emotional Impact

Photographs can manipulate their viewers by evoking emotion. The sight of someone crying or of a ragged beggar on the streets strikes a responsive chord. Visual images of the Vietnam War—the self-immolation of Buddhist priests, the napalm victims—had a major role in defining and changing Americans' attitudes toward that war.

Selectivity, the angle of the shot and the scope of the photograph can influence the viewer's reaction. As an example, there is a famous scene in the motion picture, *Gone with the Wind,* Scarlett O'Hara at the train station, walking among the wounded men lying on the ground. First, we see a tight shot of her with several of the wounded. Then the camera draws back, pans the area, and we see hundreds or thousands of bodies, wounded or dying, covering the ground. The close personal shot evokes one emotion, the longer shot another, giving two perspectives on a human tragedy.

The last agent in this process of manipulation—the viewer—sees the results of the previous manipulations and brings his/her own prejudices to the image. As Davidson and Lytle have remarked, a photograph is a mirror "silvered on both sides: catching the reflections of its user as well as its subjects."[7] Each of us has social and cultural biases that influence the way we "see" a photograph. These biases must especially be kept in mind when considering the images of other cultures. Without prior knowledge or understanding, we can easily misconstrue the evidence. For example, facial tattoos, a custom that appears barbaric by Western standards, is an important positive component of some cultures, connoting wealth and rank.

Historical Context

In any visual study, it is important to establish an historical context for the photograph. You must become familiar with the time and place depicted and the important issues of the day, the things that make that era distinctive. Know the economy of the area and its social and political ramifications: the textile mills in Lowell, Massachusetts with their female work pool, the Texas oil boom of the twenties and the resulting boom in saloons and brothels, the "Hoovervilles" that sprang up during the Great Depression.

Unless the viewer has learned the cultural and historical background, some photographs may be meaningless; with such background, they take on new dimensions. Photographic image and narrative context can complement one another, and together they can create a story. This interplay is what makes the interpretation of photographs so engaging, so challenging, and so open to analysis.

The Local Photographic Collection

An instruction/orientation session provides a good opportunity to promote your library or company and its photographic collection. The kind of institution and its aims determines the kind of photographs that will be collected. Describe the nature and scope of the organization and its collection, how you acquired certain materials, their source, your collecting policies. Briefly discuss some of the major, notable, or otherwise interesting collections in your care. The collecting intentions of an oil company founder, as reflected in his personal collection of photos, can differ markedly from those of his company's staff photographer. This is also an appropriate time to mention the fragility of photographs and their necessary care, and give special caution on proper handling.

Besides showing the kind and variety of photographs in your collection, you can use an instruction/orientation session to teach basic skills required for photo analysis; encourage critical thinking and help your audience refine their perceptive abilities. The interpretation of a photograph can consist of five steps, not necessarily in this order:

- Personal impressions, subjective feelings regarding a photograph;
- Identification and description, technical and topical, with additional information based on reasonable inferences from the photo itself;
- Relation of the photograph to the general social phenomena depicted;
- Relation of the photograph to other photos; and

- Relation to the general socio-cultural-historical milieu.

Not all of these steps will have equal weight. Some you may want to skip, depending upon the time allowed, number of photographs to analyze, and what you and your audience want out of the session.

It is best to ask for personal feelings first, as initial impressions can be influenced by subsequent discussion. Is the image one of prosperity? Is it realistic or romantic, formal or casual? You can build on and critique these early impressions as you examine the photograph more closely.

Provide the identification of the photograph and fill it out with a detailed description of objects, poses, spatial relationships, etc. Then ask for inferences on additional information based on supporting evidence. What is the social phenomenon depicted—acculturation, family dynamics, ethnic tensions? Each class of phenomena has certain characteristics. How does the photograph bear out these assumptions or contradict them? Who collected the photographs and why?

Compare this photograph with others. For example, you could discuss the similarities and differences between selected views of one-room schoolhouses. Give the general background to the photograph—the socio-cultural milieu and the significant historical events of the time. How does this background knowledge elucidate or conflict with what we see in the photograph?

Select appropriate photographs for your session. A photograph of men constructing a railroad in Kansas in the 1890s can show work relationships, document the rapid expansion onto the western frontier, perhaps give evidence that certain ethnic groups were recruited for certain kinds of labor. What does the photo tell you about the attitudes and values of the workers and how they viewed their relationship to the land and its resources, to the social groups that they were displacing? Photographic information can be supplemented by excerpts from contemporary newspaper accounts, diaries, histories.

Provide guidelines for your audience on what questions to ask of a photograph, what things to look for, and then give them a chance to interpret on their own as a group. They will not necessarily have your expertise in identifying photographic processes like albumen prints, but you can provide them with a list of the major characteristics of each process they are likely to encounter. Give them handouts indicating the range of dates during which each process was popular.

In turn, your audience may help identify persons, places, events. One person may have expertise in the identification of windmills and their manufacturers, another in styles and dates of pot-bellied stoves.

Invariably, they will see things that you have missed or offer alternative interpretations. As with any interpretation, there can be room for varied meanings. Each is valid as long as internal and external evidence is marshalled to support a particular interpretation.

You can also discuss photographs in terms of the complexities involved in the process of creating and viewing a visual document: agents of creation/manipulation, manifest and latent symbols/values/attitudes. For example, acting on the premise that the railroad company representative who paid for the photograph described above would want to include certain things in the image (perhaps a new piece of equipment) and create a certain impression (perhaps a visual progress report), we can ask who he would have wanted to please with this image, and why? Would the intended viewer have been impressed? Are we, as late twentieth century viewers, impressed?

Use images that are particularly appealing and that lend themselves to interpretation; there are some photos that are simply too flat and dull to interest anyone. On the other hand, don't make them all so obscure that your audience is discouraged from analysis. It takes time and experience to build interpretive skills. Use photographs that illustrate principles the people in your audience can use later on their own.

Conclusion

Photography is an art and a science, and photographic analysis studies how the interplay between the subjective and objective realms creates and influences what we see. At an objective level, we have the face value of the image.

Once we become aware of subjective aspects—factors such as intention and selectivity—we can get "behind the scenes" and learn even more about a photograph, the reasons for its creation, and even gain an understanding of our own role as viewer/interpreter.

Hirsch tells us that a photograph "celebrates the details while it obscures the ironies, ambiguities, and contradictions of life."[8] Yet in many ways, we can gain access to these "intangibles" of life by reference to context. With responsible analysis of photos, the vagaries of history are thrown into new perspective and given human dimension. By themselves, individual photographs may not be able to give us all the answers we need, but they can very often lead us to questions we should be asking. ■

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Current Research in Visual Studies

Several organizations and journals report on current investigations in the field of visual communication:

Afterimage (10/year; $28/indiv., $32/inst.)
Visual Studies Workshop
31 Prince Street
Rochester, NY 14607

CVA Newsletter (quarterly; distribution free to members)
Commission on Visual Anthropology
International Union of Anthropological and Ethnological Sciences
Department of Anthropology
University of Montreal
PO Box 6128, Station A
Montreal, Quebec Canada H3C 3J7

SVA Newsletter (quarterly; $20/year)
Society for Visual Anthropology
(formerly Society for the Anthropology of Visual Communication)
c/o Thomas Blakely, Executive Officer
Department of Anthropology
700 Kimball Tower
Brigham Young University
Provo, UT 84602

Visual Anthropology (quarterly; $49/indiv., $90/inst.)
(published in conjunction with the Commission on Visual Anthropology)
Harwood Academic Publishers
P0 Box 786
Cooper Station, NY 10276

An important but now defunct journal in visual studies is:

Studies in Visual Communication
(v.6, no. 1; Spring 1980- v. 11, no. 4; Fall, 1985).
Continues *Studies in the Anthropology of Visual Communication*
Back issues available ($6/issue, $22./volume)

from
Journal of Communication
Annenberg School of Communication
3620 Walnut Street
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Nurturing Your Professional Development

by *Mary F. Lenox*

■ Through self-knowledge, nourishing, supporting, and developing one's inner dimensions, and utilizing appropriate external resources with vision, discipline, and goals, professional development is encouraged and nurtured. It is strengthened through focus, commitment, and continuing education. Metaphorically, professional development may be viewed like the cycle of the seasons. Each season can be a time of growth, change, and challenge. Ultimately, nurturing one's professional development is an act of faith in one's self and one's ability to grow and change. This paper is an excerpt from a speech delivered at the Special Library Association's Affirmative Action Program on "Employment Challenges" during the 1989 SLA Annual Conference in New York City.

I appreciate the opportunity to speak today on nurturing professional development. This presentation will introduce some seed thoughts to inspire movement towards a vision for enhancing your professional and personal life. While this presentation can only touch upon a very significant topic, hopefully, it will give new insights into:

- discovering your resources,
- developing your options,
- activating your purpose, and
- discovering your resources

Several years ago, I received a National Kellogg Fellowship. Part of the activity involved the study of human relations concepts through readings, workshops and personal experiences. One of the most significant events that occurred during the fellowship program was meeting and studying with Virginia Satir, a world-famous family therapist. One of her basic premises was that communication, and indeed all human relations, evolve from the foundation of self-knowledge, family structures and the interdependent relations that occur therein. It became clear that healthy human relationships of any kind begin with relating with and understanding oneself. It is the uncovering and discovery of the resources which we all have that becomes the hallmark of nurturing our professional development.

Dr. Satir points out that "human beings are wonderfully made."[1] In her book, *The New Peoplemaking*, she indicates that there are eight dimensions or "parts" of a human being, namely: body (physical), mind (intellectual), soul (spiritual), feelings (emotions), context (space, air, colors, sound and temperature), relationships (interactional), nutrition (the liquids and solids that you ingest), and senses (sensual parts: eyes, ears, skin, tongue and nose).[2] Each dimension has unique needs and wants. Each calls upon us at different times and in different ways for attention and nurturing.

Nurturing professional development begins with a search for self knowledge. Know yourself. You've heard it a hundred times, but how does one gain self-knowledge with today's competing demands, attractions, and distractions? How can the eight dimensions be nurtured, nourished, and supported?

Webster's Collegiate Dictionary defines nurturing as anything that nourishes. It is the act or process of raising or promoting the development, upbringing, or training of something or someone. It means to feed or nourish. How do we feed ourselves? Certainly on a physical level there is food and water necessary for physical renewal. But what is the food for the spirit, emotions, or relationships? How are these and other parts of ourseleves discovered and developed? There are literally hundreds of ideas; let me suggest one which occurrs again and again.

Ancient masters have pointed to the concept of being still as a way of seeking self knowledge. That stillness is a focused commitment of letting go of the external, for a time, and to focus effortlessly, but with awareness and intention, on the inner dimensions. It is the disciplined practice of focusing within. It is listening, observing, and discovering one's own thoughts, feelings, wants, and needs. Sometimes, such stillness can be obtained through meditation, the simple practice of closing your eyes and being very still and focused. Other times, it can be gained through yoga or other practices. I have a friend who gardens, she considers this her meditation. Still others sit and focus on one word or one image, while others use prayer or another form of reflection. Whatever the practice, it is clearly important to do it. It is not easy, yet if you are to nurture your professional development and see it prosper, then a commitment to self discovery is the beginning first step.

The following exercise should allow you to experience a sense of quietness. Close your eyes (to eliminate as much sensory data of light and color and sound as possible). Imagine your favorite scene in nature. What does it look like? What does it smell like? What does it feel like? What does it taste like? What does it sound like? Now allow your mind to become completely still. If thoughts occur, release them, and let them go. In this silence you can discover your inner self.

Developing Your Options

The second aspect of enhancing professional development is developing options by using internal and external resources. Besides, the eight dimensions, a person's abilities, skills, knowledge, education, gifts, talents, and experiences.are also useful in nurturing professional development.

External resources include people, places, money, ideas, and opportunities. They are abundantly available. For example, the School of Library and Informational Science at the University of Missouri-Columbia has developed a statewide continuing education program for persons wanting preprofessional and in-service learning options. The School has also developed the "Intern With a Mentor" concept, which offers some students a unique opportunity to work in a real library situation and gain "hands on" experience as they are earning their master's degree in library science. Programs such as these (designed to help individual's reach their professional goal) function around the country.

There are many other resources as well. Books, workshops, seminars, and friendships are resources which can strengthen your professional and personal growth. Mentoring is yet another avenue. Professional meetings such as SLA's Annual Conferences are yet another resource for nurturing professional development. Your experience as a parent, teacher, or volunteer are invaluable sources for enhancing your development.

An important element in professional development is understanding your motivation. Abraham Maslow's hierarchy of needs describes five basic human needs: physical, safety, social, esteem, and self.actualization. He states that, "we have seen that the chief principle of organization in human motivational life is the arrangement of needs in a hierarchy of less or greater priority or potency. The physiological needs, when unsatisfied, dominate the organism, pressing all capacities into their service and organizing these capacities so that they may be most efficient in this service. Relative gratification submerges them and allows the next higher set of needs in the hierarchy to emerge, dominate, and organize the personality, so that instead of being, e.g., hunger-obsessed, it now becomes safety-obsessed. The principle is the same for the other sets of needs in the hierarchy, i.e., love, esteem, and self-actualization..."[3]

Professional development can be viewed as growthful, like a seed which needs to be planted, watered, and fertilized. Metaphorically, professional development may be viewed like the seasons of the year, continuing in ever evolving cycles with a beginning, middle, end, and then begin again. With each new cycle, the ground has to be dug up, fertilized, and new seeds planted. Then, the crop has to be maintained and finally, reaped.

Where are you in your professional development? Spring is a time of new beginnings, hope, and possibilities. It is a season of rapid change from the dormant cycle of winter into an awakening presence of invigorating energy.

Perhaps you are at the "spring of your life"; you are digging up the ground of old patterns and planting new ideas, projects, and options. You are questioning and searching for the appropriate context for nurturing growth. Some useful questions to answer may be:

What new ideas have you developed over the past month or so?

What new fields have you looked into? Determine what will you be "growing" in this time of your life?

Have you visualized new goals? Survey the possibilities and make careful choices to insure optimal results.

Understand the environment and conditions for your growth. Do you understand your work environment, supervisor, and associates? Exactly what does your job demand?

How do others perceive you and how are you perceived? What is your role in the organization?

Have you explored continuing education possiblities?

What are your educational needs? What new skills are needed to develop your new ideas? If you decide to return to school, be aware of the academic environment to which you're applying. Be aware of financial aid options, placement possibilities, and course offerings.

What services are available to you within the academic organization?

Summer is a time of completion, expansion, and cohesion. The challenge is for you to produce efficiently and effectively regardless of the adversities and unexpected elements; weeding is critical, so as not to choke out plants as they mature. Weeding requires throwing out the old and making space for new ideas; weeding allows for the conscious creation of spaces and openness to allow for growth.

Consistency, discipline, and focused movement are key in weeding. Movement may be a promotion within your existing organization, or to a new one. It may be changing your view of what you are doing and why. It may be replacing the weeds of doubt, anxiety, and fear with the nutrients of courage, hope, commitment, and appreciation for successes, as well as the lessons learned from failures. Summers can be long dry periods which require deep digging to find those necessary nutrients.

Summer is a time to care for yourself by honoring your creativity, appreciating yourself even if others do not. You may strengthen your skills and acquire new ones as you make the commitment to give of yourself in service to others in your chosen profession. It is also a time to pay attention to distractions which spoil or destroy your potential. It may be necessary to develop preventive measures to control the invasions of unwanted elements.

Fall or autumn is a time of rapid change, detachment, and transformation. The fall cycle causes us to become mellow, ripe with the maturation of experiences; the fruits of ones labors can be realized and appreciated.

Perhaps you are a mentor or leader in your organization. In the book, *Seasons of a Man's Life*, Dr. Daniel Levinson writes about about the significant role of a mentor. He discusses the benefits of mentoring to the "mentoree,"; Levinson then states, "the distinctive satisfaction of the mentor lies in furthering the development of young men and women, facilitating their efforts to form and live out their dreams. More than altruism is involved, the mentor is doing something for himself. He is making productive use of his own knowledge and skills in middle age. He is learning in ways not otherwise possible. He is maintaining his connections with the forces of youthful energy in the world and in himself. He needs the recipient of mentoring as much as the recipient needs him."[4]

Finally, winter approaches. Winter is a time of dormancy, and yet it is a time of enrichment, movement from one level to another, a completion of one cycle and preparation for another. It is a time to finish one set of goals in preparation for another. It is a time of inner development through journaling or reflective writing. In his book, When *All You've Wanted Isn't Enough,* Harold Kushner points out that "the older we all get, the more interesting we become as people because of the experiences of the passing years have deepened and enriched us."[5]

Nurturing professional development means giving the appropriate watering (flexibility, fluidity), food (new knowledge, skills, abilities), and light (focused energy) through substantive commitment. It is to know where you are and where you want to go. In each of these seasonal phases changes ocurr in a continuing evolution.

Activating Your Purpose

Where do you see yourself now? Where do you want to be in five years? If you find it difficult to focus on this, take some time to write your own obituary as you would like it to read. This enlightening process can give you a chance to adjust your life as you'd like it to be. It will help you to define what is important to you. It will help you visualize what you have achieved, while at the same time giving you the opportunity to change if you don't like what you see.

What have you been putting off? What would you like to do that you haven't done yet? My recent experience with breast cancer has compelled me to become more clear on who I am and who I wish to be, as well as what I want and need to do. Thomas Jefferson was a man of many talents. He was President of the United States, Ambassador to France, writer of the Declaration of Independence, Secretary of State, architect, farmer—a genius in many ways. Before his death, he wrote his epitaph and requested that nothing be deleted or added. He wanted to be remembered for two achievements: i.e. as the creator of the Declaration of Independence and the Founder of the University of Virginia. He knew well before his death what he wanted to achieve and, of course, he achieved them.

Conclusion

Why is it important to seek growth and change? We often can see the problem in someone else or in other situations, but ultimately, the only one who can change you is you.

This presentation has hared ideas through metaphor and other techniques to help you visualize ways to nurture your professional development. To nurture your professional development is to take responsibility for your thoughts and behavior.

Finally, let me encourage you to periodically evaluate where you are and where you want to be so you change your intentions with awareness. Ultimately, nurturing your professional development is an act of faith in the self and in your ability to grow and change. As you nurture yourself with the flexibility of creativity through focused intentions, new vistas will open and the fruition of your efforts will bloom and radiate like the flowers of spring in a beautiful garden. ■

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Computer Viruses: Interview With Frederick Cohen

by Maria C. Barry
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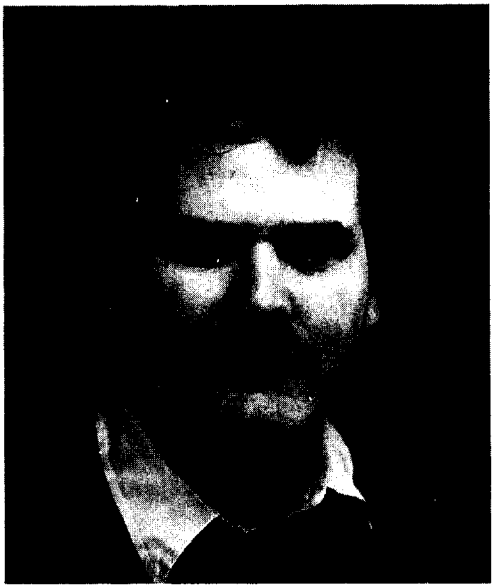


Dr. Frederick Cohen

Will information, its use, and dissemination influence society in the next decade as much as information and social scientists predict? Will it change our social, educational, and political structures as much as special information professionals and futurists such as John Naisbitt proclaim?

Anyone doubting the ever-increasing impact and power of information as a "megatrend" or "shaper" of everyday life and society as a whole, need only spend time talking with Dr. Frederick Cohen. As President and CEO of a firm which publishes protection software, as well as conducts research and consulting on the subject, Cohen has built a business responding to society's realization of the amount of information available, the extent to which it can be accessed and disseminated and, consequently, the need to protect it.

Cohen is President and CEO of Advanced Software Protection, Inc., in Pittsburgh, PA, and led one of three sessions on computer viruses and related vulnerability issues at SLA's 81st Annual Conference in June. A short time after the Conference, Cohen spoke with *Special Libraries* Editor Maria C. Barry on the topic of protection of information.

While most members of the business and professional community are becoming aware of the destruction capabilities of computer viruses, those same individuals rarely approach the matter from the right direction, according to Cohen. As information use and access dominates most sectors of society, the importance of following federal security codes and the wrong in violating computer systems should become innate in schools, science, and people's thinking.

Instead, defects in the American education system and an overzealous and enthusiastic information science community have created anxiety verging on panic as people realize the importance of information and their ignorance in being able to protect it, Cohen explained. He began the interview with a brief history of computer viruses.

Computer viruses didn't appear until the mid-1980s when attackers created viruses which were relatively simple. Although the theory behind computer viruses is to write a virus in which detection of infection is impossible, few of the first attackers were great tacticians, Cohen explained. The first viruses can be considered experimentation with artificial life and the first attackers were intent on "spreading their seed."

"Attackers usually identified themselves and left a message saying something like 'Gotcha ya or Ha-ha.' While the viruses were certainly ill-intentioned, they tended to be geared for mass destruction."

Cohen went on to explain that evolutionary viruses, the type of virus appearing on today's computer scene, is much more destructive.

Evolutionary viruses didn't appear until last year, according to Cohen. The power behind evolutionary viruses lies in the fact that the virus changes each time it generates; consequently, looking for one particular pattern in an attempt to locate the virus is pointless.

"For example, say you have a program listing the locale of all your books. Someone writes a program changing the first and last LC numbers, your staff is constantly looking in the wrong part of the library, creating a tremendous amount of extra work. You find the mistakes, go in and correct all the numbers; but say the virus was written so that is only changes 25% of the numbers each month. Each month you have to go in and correct all the numbers, creating even more work," Cohen explained.

It is the sophisticated ability to ruin information that alarms information and other professionals.

Unfortunately, those professionals continue to deal with the problem of protecting information by looking for ways to track down and punish information violators, Cohen said; he likens the current approach to treating the symptom, not the actual cause of the problem. Because ultimately, computer security is an integrity issue, the problem should be attacked where it begins, with people in the education and scientific communities.

Currently, the topic of computer security is woefully ignored in schools, contributing to a extreme ignorance about computer security laws and issues, Cohen said. Cohen, who holds both an MLS from the University of Pittsburgh and a Ph.D from the University of Southern California, wrote his theses on computer viruses. During his undergraduate and graduate education, the topic of computer security received "maybe 15 minutes of time and attention."

When the subject is addressed, it is often taught by professors who may be adept at computer science, but gleaned their computer security knowledge from books written from the "treat-the-symptom" viewpoint; consequently, the faulty approach to computer security is perpetuated.

Furthermore, the content of computer science courses exacerbates the problem as professors often give students assignments which violate computer security laws, Cohen stated.

"A professor will say get onto such-and-such a network and find this information. That assignment may be in violation of federal laws but that violation is either ignored or professors and students are simply unaware," he explained.

The rigid nature of the academic community system prevents news of computer virus research from being accepted or discussed, Cohen said.

"A couple of years ago, *two months* before the Morris attack, the computer science community predicted that sort of virus could be written and occur; the scholarly reviewers, mathematicians—the academic community in general—claimed it was a pipe dream, a fantasy, and it could never happen. They are a very conservative community which takes a 'if I haven't seen or heard of it, it can't happen' approach."

Robert Tappen Morris, Jr., was convicted in January 1990 of violating the Computer Fraud and Abuse Act. Tappan had set loose a program which disrupted a nationwide computer network in November 1989.

The difficulty in introducing new topics into a school's curriculum contributes to the computer integrity problem, Cohen stated.

"The way it's set up now, dogma dominates in schools. If the top dog decides the right thing is important, he gets money and importance and his idea of what is important becomes dogma."

Unfortunately, computer security probably won't be any "top dog's" idea of important subjects for study, according to Cohen.

For computer security/integrity to become an essential component of education, it should be introduced in primary education; ideally, it should become part of a child's upbringing.

"Right now, as parents we tell our child its not okay to walk on other people's property, but we don't hold their hands through computer training, they're allowed to explore unsupervised. (The importance of following computer security laws) really should be taught from birth," Cohen said.

Since few of today's professionals' parents had any computer training, computer security and integrity should begin in the primary schools—the first time most children touch a computer, Cohen explained.

Proper education and training in the area of computer security would avoid the high level of anxiety caused by computer security infractions, Cohen said. "If people knew their stuff when it came to computer security, computer security people wouldn't be able to create the panic that is created when an infraction occurs...there is a general misperception that computers are perfect, invulnerable. Computer security people know that and also know that perception isn't true so they call for blood when an infraction actually happens."

Decreasing that anxiety is important as the persecution of computer security violators sends a message which gives further endorsement to the perception that violation of computer security is okay.

During the Morris case, Cohen explained, the defense never challenged federal agencies' searching of 1000 computers after the virus was reported; now that the precedent has been set, law enforcement agencies can search computers without a warrant. People may continue to accept such monitoring as they realize the type of information available and the extent to which it can be disseminated.

"Messages abound that it is okay to (conduct such monitoring) because people see information is becoming so pervasive." Cohen said.

The information science community also shares responsibility for the current ignorance on computer security, according to Cohen.

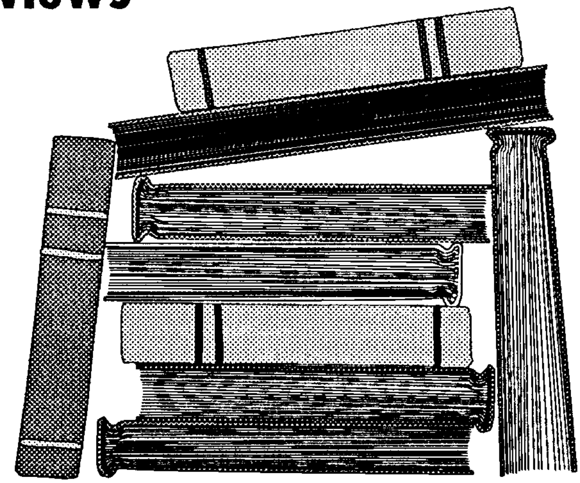
"I think like any other scientists, information professionals ignored what was going on in society, they ignored protection/integrity issues and sacrificed these issues in the interest of pure science," he said.

"They'll be looking at how interesting this network is or what it can do and not paying attention to federal computer security laws."

This can be avoided by setting standards for the profession, Cohen stated. But, he pointed out, setting standards doesn't control the activities of the professionals; integrity in working with computers and information has to become part of our thinking.

A place to start is the education system. ■

Book Reviews



Developing Leadership Skills: A Source Book for Librarians by Rosie Albritton and Thomas W. /Shaughnessy. Libraries Unlimited, 1990. ISBN 0-8287-5776, 300 pp.

Developing Leadership Skills grew from a grant awarded to the University of Missouri-Columbia by the Council on Library Resources. An inter-scholar program was designed by the University. This source book was compiled for the interns and is designed to be self-instructional.

The book consists of six parts, each with its own introduction. Each part has a unique theme with appropriate readings which develop a particular aspect of leadership training. Each introduction has its own bibliography and notes, as do many of the articles.

The first section discusses leadership theory, models, and styles. It includes excerpts from articles published in *Personnel Journal, Training and Development Journal*, etc. A leadership check list appends one article and this is one of the many self-evaluation tools included.

Part two is devoted to self-awareness in assessing leadership skills. One evaluation tool is a twelve-point checklist to determine self-worth. One article addresses issues relating the self concept of the female library manager.

The third section addresses self-development in the interpersonal skills area including communication, time management, etc. An article called "Stress in the Library" has been reprinted from *Library Journal* and reviews feedback from stress management workshops conducted for a wide variety of library personnel. Time management tools are included in another article.

Part four, "Professional Growth and Development," addresses the effectiveness of the individual. The articles are psychologically oriented; some speak of mentoring, stages of life, career plateaus and organizational structure.

Part five, "Libraries, Technology and Change" addresses leadership issues. One article includes results of a survey of 1400 ALA members. An article from the *Journal of Academic Librarianship* called "Library Leadership," by Richard M. Dougherty was very informative as was "Leadership versus Management," by Donald E. Riggs. These two articles contained a wealth of material relevant to librarians in middle management or management positions. The concept of leader vs. manager could be explored in depth at workshop or training sessions. These articles also addressed needs of the future, as well as power issues.

Part six, "Exercises and Inventories," consists of eight evaluation tests to be self-administered. The tests measure leadership potential, assertiveness, communication skill, stress, etc.

The book has an index and extensive bibliographic sources. It is a worthwhile addition to the body of library literature. It ties together a variety of materials from the library as well as general literature to develop the theme. The materials can be used by individuals for a self-assessment or development resource, as well as a springboard for leadership training programs.

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Head of Technical Service
Touro College Law Library
Jacob D. Fuchsberg Law Center
Huntington, NY

The Impact of Rising Costs of Serials and Monographs on Library Services and Programs. Edited by Sul H. Lee. New York, NY: the Hawoth Press, Inc., 1989. ISBN: 0-86656-885-9, 125 pp.

The papers contained in this book were presented at a conference at the University of Oklahoma in February 1988. The papers were also published as an issue of *Journal of Library Administration*, vol. 10, no. 1 (1989). Two earlier conferences at the University of Oklahoma had a similar theme. While $19.95 is a hefty price for an 125-page book, the contents of which are available elsewhere, it may be acceptable since the information deserves the widest possible dissemination. The importance of rising costs for library materials during the last several years, particularly the costs for serials, is evidenced by the frequent appearance of the topic in journal articles and presentations at meetings. In 1989 the Association of Research Libraries produced its "Report of the ARL Serials Prices Project" in response to the crisis of rising serials costs for its members. Another key indicator of the crisis nature of serials prices is the fact that an electronic newsletter on serials pricing issues is now produced by Marcia Tuttle at the University of North Carolina.

Library managers and collection development librarians can no longer simply decry the escalating costs of serials acquisitions which occur simultaneously with static or reduced funding. *The Impact of Rising Costs of Serials and Monographs on Library Services and Programs* along with other publications on the same topic provide many coping strategies as well as a few suggestions for long-term resolution of the problems.

As is often the case in a collection of papers, the eight papers in this book vary in significance and writing quality. However, all the papers contribute to a greater understanding of the overall magnitude of the problem of rising costs of materials on library services and programs. Thomas Shaughnessy's paper on "Management Strategies for Financial Crises" offers insight on involving staff, faculty, and administration in the management effort. In "Will the Serials Giant Eat Us?" Shelia Dowd provides an excellent summary of practical considerations in analyzing the library's cost areas and the budget options available. Charles Hamaker in "Costs and the Serials Information Chain" concentrates on dealing with the serials titles and publishers representing a relatively small percentage of the serials list but a large percentage of the serials pricing problem. Other papers deal with the perspective of the serials vendor, the possible impact of new technology, etc.

While the focus of this collection is on academic libraries, all the contributors being academic librarians or vendor representatives, the understanding presented and the strategies and solutions suggested are applicable to all kinds of libraries—at least to those experiencing a continuing gap between rising book and serials costs and increases in budgets. Taken as a whole, the suggestions offered here can make a real difference in our success in dealing with superinflationary costs and budgets which are inadequate to offset the loss in purchasing power.

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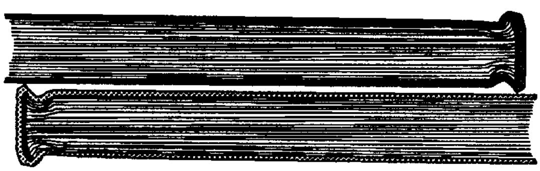
Information Quality: Definitions and Dimensions; Proceedings of a NORDINFO Seminar, Royal School of Librarianship, Copenhagen, 1989, edited by Irene Wormell. London: Taylor Graham, 1990, ISBN 0-947568-43-3, 139 pp.

Evaluating the quality of information services is, like the old aphorism about the weather, something we all talk about but seldom manage to do much about. While this little paperback work also does not give much in the way of things we can do to help evaluate the quality of information services, it certainly provides a lot of things to think about when contemplating this very difficult issue in the management of information services. It is highly recommended reading for managers and an absolute must for researchers in the field.

The volume contains the ten papers presented at the August 1989 NORDINFO (Nordic Council for Scientific Information and Research Libraries) Seminar in Copenhagen at the Royal School of Librarianship. The papers appear to be the verbatim texts as presented at the conference along with a very brief introductory (containing summaries of the papers) chapter by the editor. The ten authors represent a wide spectrum of nationalities (European, U.S.; Australian, etc.), disciplinary backgrounds (library and information science, computer science, public administration, etc.), and focus of work. Both researchers and working managers—and combinations of the two—are well represented.



The best overall context for the volume as a whole is put most effectively by Gulten Wagner, of Australia, in her short but superbly crafted paper, "In the Age of Information it is a Profound Irony That There is a Lack of a Solid Body of Theoretic Work on the Quality and Value of iInformation." (p. 69) Both the lack and need for theoretical perspective is also addressed in two other papers. Johan Olaisen, of the Norwegian School of Management, explores the relationship between connective authority and institutional authority in information processing. Rafael Capurro, from the Federal Republic of Germany, discusses the social character of information and the issues involved in developing an information ecology that has "ethical quality" implications.

Theoretical issues do not predominate, however, and a number of different efforts are made towards developing definitions that are useful to researchers as well as managers of information systems. Don Marchand, of Syracuse University, explores differing components that make up quality and the implications those parts have in the management of quality. Miriam Ginman, of Finland, using data from her study of CEO's of varying sizes of corporations, shows how various personal, behavioral, and organizational characteristics affect quality judgements.

Patricia Hamalainen, Senior information Officer for ALKO, Ltd. of Finland, provides an excellent model of quality information service delivery through her discussion of how to deliver specific niche information service products to managers. Her discussion is particularly appealing as one answer to quality because of the frequent conclusion that quality, or value, in information services is situation dependent, time specific, and, perhaps, totally subjective. While Werner Schwuchow of Germany is sympathetic to this view, his paper is an interesting effort to develop a methodology for measuring quality of information services. Those who rush to use his method, however, will discover, it to be a complex and expensive one, as he acknowledges. Schwuchow's rather involved methodology is followed by an equally intimidating set of considerations by Ulf Hanson, an attorney in Sweden, regarding the liability aspects of information service provision.

Both managers and researchers of information services will find this to be a rewarding work. It is not filled with easy answers for either but is an honest work that reflects and illustrates the problems—both metrologically and practically—that confront us if we are to begin to understand more fully the problem of quality in information services. One wishes that the editor had decided to include some of the discussions that surely followed these papers so that readers could benefit from seeing what "answers" the authors who had thought more fully about the issues, might have posed to these very difficult questions.

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Making Money: Fees for Library Service, by Alice Sizer Warner. New York, NY: Neal-Schuman, Pub. 1989. ISBN 1-55570-053-5, 150 pp.

Adequate financing for libraries of all types has always been something of a problem; librarians seldom have a budget that permits them to perform all the services they would like to provide.

In this new book, a slim volume of six chapters in 150 pages, the author presents the basic evaluations regarding the charging fees for information services. Most of the information is positive with a minimum of coverage of the negative factors.

Although the precept is not new (many libraries have had some fee services for at least half a century) the idea of fees is generally met with disapproval by most professional librarians. Not much has appeared in print, so this is basically a beginners book with much more tangible information promised for the future.

Some libraries use a fee system in varying degrees. A few corporations budget their libraries with the expectation of 100% reimbursement of operations, including salaries, through charges to various departments and users, usually based on hourly rates. The future answer lies somewhere between these and fee services.

The adoption of a fee system involves financial transactions with all the accompanying headaches such as invoicing, billings, and collecting from those who feel the library is one of the resources of the establishment.

Setting up a fee system also entails a selling job. This is often difficult and most librarians have had little or no exposure and background in this form of public relations.

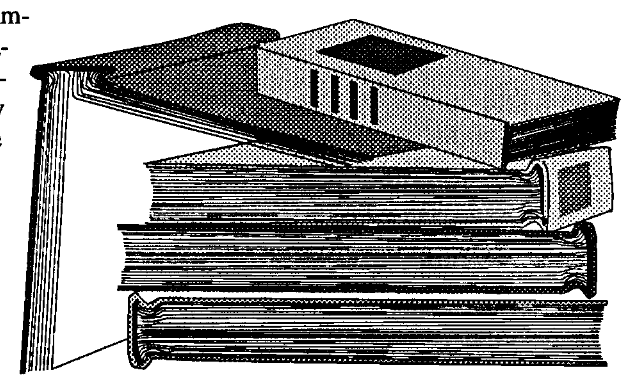
The six chapters in this information-packed treatise are actually sections covering the principal basic aspects of fee charging for library services.

The first section. "Controversy," deals with the dilemma faced by librarians regarding fee access to materials and services. Traditionally, librarians, by nature, training and instinct, defend one premise that free access to information is essential—free services are the backbone of libraries in a free society. Some even feel that fees for services are unethical.

Listed in this first section are about 40 services currently offered on a fee basis. Also listed are 25 typical kinds of clients that have become fee patrons.

The second section, "Activities," covers fee-based services in various types of libraries including academic, public, specialized, medical, and Association. Also discussed are charging back and charging out fees; charging back is billing to the using department, often a paper transaction. Charging out is adding the library fee to the client's billing as is often done by law firms.

The next section, "Planning," includes discussion of the goals of the service and a decision on the services to be sold. Also important is who will buy the fee services and how the service will be organized, along with setting the fees. Other important considerations treated in this section include ethical issues, confidentiality, liability, determining when profits are not profits, and copyright problems.



The section on "Implementing" discusses the fee proposal and how to sell the plan to the decision makers—the library board in some cases and corporate heads in others. Suggestions are given on how to sell the plan to the library staff and the shifting to charge backs and charge outs.

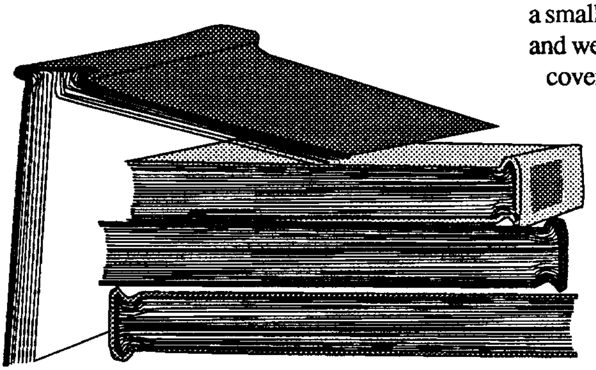
Section five, "Clients and Customers," begins with an appraisal of the current situation. The author suggests that selling the services can be made easier if the cove clientele is established—users who will want regular assistance. The business ratio of most businesses can apply here—80% of a firm's business comes from 20% of the customers.

Concluding the "Clients and Customers" section is a set of basic rules to follow regarding clients; knowing the services you are selling, knowing the clients, and being able to explain the services in simple, readily-understood language. The easiest way to get fee-service clients is to find those who need repeat services. Emphaisze the benefits, go where the money is, and always avoid crusading.

The book's final section covers selling the service. Selling is done through news releases, newsletters, regular columns in area publications, giving talks and speeches to clubs, schools, churches and business firms and giving interviews to the media.

A list of 19 suggestions for preparing a brochure describing a library's services is provided. All of these public relations outlets are comparatively inexpensive and the better the public relations jobs the better the results.

Payment for ads in publications is usually not productive, but exhibits and displays are effective. Direct mail programs are not too expensive and are often effective.



At the end of each section of chapters the author has provided a list of references for further reading, as well as an adequate index. This book is well-documented and the controversial policy of fee charging for libraries is thoroughly explored. The book projects the future demands that will be faced by most librarians. It shows the need of librarians to become better versed in library finance, salesmanship, and public relations in an ever increasing degree.

Fee payment for library services may well be the wave of the future; we should all become aware of the possibilities as well as the need for fee services. This book has much food for thought and deserves a careful reading by all librarians.

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Starting, Managing, and Promoting the Small Library, by Robert Berk, Armonk, NY: M.E, Sharpe Inc., 1990. ISBN 0-87332-576-1, 177 pp.

This book covers every possible angle of library management, from "Goals" to "Space Management." The chapters on "Starting a Library" and "Functioning as a Manager" should be reread by every special librarian as a refresher on the ideals or methods one starts out with versus the realities faced when the job has to get done.

The book provides an excellent theoretical guide for the goal it sets itself—establishment of a small special library from scratch. It is a direct and well-written guide providing short, concise coverage of all angles needing careful consideration. I am not sure it is realistically possible to achieve the detailed level of documentation Berk recommends (e.g. p.26 — all your objectives written down). Each day's experiences in a small special library could change objectives as you begin an operation. It would be difficult to accomplish all the tasks he sets out, with as much cooperation from management and compliance from the users as he expects. He is aiming at the ideals—this is laudable, and, therefore makes this book an excellent teaching tool or a goal-setting guide for those in similar circumstances. In addition, the bibliographies will prove useful for those wishing to pursue individual points beyond his short synopsis explanations.

Susan Weiss
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Text Retrieval: The State of the Art, by Peter Gillman. London, UK: Taylor Graham Publishing, 1990. ISBN (to be assigned), 208 pp.

As the 1990's unfold we are beginning to see more business and library applications utilizing full text applications for information storage and retrieval. With the increased storage capacities of optical storage media such as CD-ROM and WORMs, the applications of hypertext and hypermedia, and the utilization of expert systems, the potential for expanding the storage and retrieval capabilities of information management systems continues to grow. Further, as industry becomes more adept at managing both full text and structured data, we are able to visualize more integrated systems capable of handling composite documents, or those which could combine, for example, text, images, and graphics in one program. *Text Retrieval: the State of the Art*, edited by Peter Gillman, describes recent developments in this growing area of text retrieval and management. Published as the joint proceedings of the Institute of Information Scientists Text Retrieval Conferences in 1988 and 1989, this compilation of papers addresses such issues as composite document architecture, hypertext, file structures, distributed text databases, and the role for text retrieval in information management.

Divided in two parts, the first half of the book reflects the theme of the 1988 conference, "The User's Perspective." Ward begins with a paper titled "Text Retrieval—Its Place in Information Technology," and explains why many organizations are becoming interested in information management. Since textual information is a large part of a business's information base in the form of letters, documents, published materials, etc., text retrieval has a place in developing an information management system. Ward summarizes the new trends in text retrieval to encompass all of the company's information needs.

Of current interest in the area of text retrieval is the ability of text retrieval systems to handle not only text but numerical data, graphs, images, and sound as well. Several papers in the 1988 conference covered the issue. In his paper on composite architecture, Dubois states, "while some hardware can usually handle the various modes in which information is presented, different software tools remain necessary." Dubois suggests enhancements to text retrieval systems to incorporate composite documents. This discussion is continued with Bawden, who speaks to problems and solutions for integrating chemical structures with text. Galbraith points out the issues involved in converting source materials containing both pictures and text to electronic form, and, in a case study, James provides the steps needed to construct a databank of mixed text and financial information.

In part II, the 6th State of the Art Text Retrieval Conference, titled "Text Management," more developments are highlighted. Cloud notes that those suppliers "who provide the most adaptable text retrieval systems to a marketplace where the customers increasingly demand the ability to put together their own environments." will succeed in the text retrieval business. Board follows with an explanation of the SGML standard, one of the new standards for allowing information to be transported from one system to another and in a variety of forms. Board does not include other standards which are being applied in the industry

By creating for the audience a fictitious law firm, Kimmel outlines a way that text could be used in the provision of information for management purpose. Likewise, Philipps provides, in another case study, the development of a text management system at Price Waterhouse Accounting Firm.

Jeffries tells what is needed for distributed text databases and text retrieval to come of age and mentions recent advancements.

Hypertext has drawn considerable interest in the last several years with libraries now using it to design tours and bibliographic instruction aids. In an excellent paper, Easterbrook traces the development of hypertext from concept to today's applications. Easterbrook proposes a new definition of hypertext and discusses what an ideal system could do in the next generation now in development. An excellent bibliography is also provided. James follows with a case study of a hypertext-based integrated laboratory information system using Guide II.0 version and Microsoft Windows. Pollitt concludes the presentations with a paper describing current issues involved in intelligent interfaces or expert systems as applied to text retrieval systems. Pollitt provides examples of different types of intelligent interfaces and includes a useful bibliography.

Providing a unique perspective from information scientists and information managers in several countries, *Text Retrieval: the State of the Art,* is a worthwhile book for information professionals to read. Though the papers were presented in November 1988 and November 1989, and articles have appeared on these topics since then, the themes presented are still timely and the information current enough to consider this book a state of the art discussion of text retrieval.

As in most conferences, quality and interest appeal can vary. With the exception of a few papers on selecting software, the paper problem, and copyright issues, covered many times elsewhere, these papers point to the theme of text retrieval and provide the reader with practical examples of software applications, new developments in the information technology field, and overall concepts of the role text retrieval has for information management. Special librarians may find the case studies useful if they are considering expanding their information base; students in information science classes may find the concepts new and interesting. As supplemental reading material, the papers are not overwhelmingly technical—though the student may have to look up occasional undefined terms such as 4GL.

Trudie Root
Serials Librarian
Eastern Michigan University

Thawing the Soviet Information Freeze, Marketing and Maximizing Information Services, and More:

SLA's 1991 Winter Education Conference!

SLA announces the 1991 Winter Education Conference program. Scheduled for **January 20–22** in Washington, DC, this year's program promises to be an exciting educational event.

The Conference will offer four half-day workshops, three full-day continuing education courses, and the Management Skills unit of the Middle Management Institute. Other highlights include the Ron Coplen Leadership Address and a humorous tour of the Nation's Capital.

Sunday

SLA begins the Conference on Sunday, January 20, with two half-day workshops. Alice Sizer Warner, one of SLA's most popular instructors, will offer straightforward guidance and advice for both the potential information entrepreneur and experienced businessperson in "Fee-based Services for the Information Entrepreneur." Participants will learn how to sell and what to charge, the steps involved in business planning and forecasting, how to manage money, and other key aspects of operating an information business. Ms. Warner is a teacher, consultant, and author of two books on information entrepreneuring.

"Maximizing Client Satisfaction," also a half-day workshop, will be taught by Arlene Farber Sirkin, President, the Washington Resource Consulting Group. Critical to the success of any business endeavor, client satisfaction can be an elusive goal. Ms. Sirkin's course will encourage participants to look at how they can maximize current resources and effectively target user needs.

One of the Conference highlights will take place Sunday evening with the presentation of the Ron Coplen Leadership Address. This year's Address will feature Jonathan Halperin, President and founder of FYI: Information Resources for a Changing World. Mr. Halperin will discuss recent political changes in the Soviet Union and Eastern Europe and the resulting effects on the flow of information.

Monday

Monday's program will consist of three full-day continuing education courses. In "How to Maximize Resources Through Marketing Planning," Arlene Farber Sirkin will lead participants through the steps of developing a marketing plan. Marketing analysis, research, and the marketing mix will be discussed as participants develop their own marketing strategies.

"Mainstreaming the Special Library," one of SLA's most popular Annual Conference courses, will be taught by Alice Sizer Warner. Participants in this program will examine how libraries can become and remain vital to their organizations and the people in them. A compendium of examples, advice, and pragmatic how-tos will be presented.

Obtaining scarce resources in the '90s will require information professionals to present their budget requirements to senior management in the context of the organization's strategic objectives. Participants in "Budgeting Strategies," taught by Barbara Robinson, will become familiar with a variety of budgeting techniques to gain better control of the library's resources and more effectively communicate the library's value to senior management. Ms. Robinson is a management consultant and information professional who specializes in strategic planning, cost analysis, and managing organizational change.

Tuesday

Tuesday's program will include two half-day workshops in the morning and a strategy sharing session in the afternoon. "Handling Reference Questions: Choices and Resources" is geared to both supervisory and front-line reference staff who have to respond quickly to a stream of telephone and in-person reference questions from a variety of clientele. Barbara Robinson will lead participants through an exploration of the reference function, how it relates to the mission of the parent organization, and the variables that can affect the question-handling process.

Participants in "Fee-based Services for the Information Intrapreneur" will become familiar with the steps involved in planning and managing a fee-based information service within an existing institution. Alice Sizer Warner, the author of two books on information entrepreneuring, will teach participants how to apply some of the same principles within their organizations and develop the skills of an information intrapreneur. Now in its sixth year, the Winter Education Conference is a combination of challenging topics and expert instruction. SLA members will receive their Winter Education Conference brochures early this month. For additional information contact SLA's Professional Growth Section (202)234-4700. ■

San Antonio —
Creating Strategies for the 1990s

San Antonio, one of America's top 10 largest cities, retains a small-town warmth and friendliness. Founded in 1691, the city boasts a unique past of Spanish, Mexican, and Native American origins with character influences from German, French, and Anglo immigrants. While other Texas cities like Houston and Dallas exhibit the hustle and bustle of modern living, San Antonio is a wonderfully leisurely place that loves flowers, romance, fiestas, and music.

Mark your calendars now for **June 8-13, 1991**—that's when you'll want to be in San Antonio—to attend SLA's 82nd Annual Conference.

The theme of next year's meeting is "Masterminding Tomorrow's Information—Creative Strategies for the '90s."

The 1991 Conference will focus on the organization and coordination required to provide effective information services in the new decade. As the complexity of information access increases, the information professional's ability to pull together sources and resources will become more and more critical. Conference programming will emphasize assertive management, innovative problem-solving, and strategic planning—essential skills for the '90s information manager.

Attend this year's conference and develop the strategies needed for the challenges of tomorrow:

- **Professional Development Programs:** continuing education courses and workshops specifically developed to sharpen the skills of both new and experienced professionals;

- **General Sessions:** featuring keynote addresses by outstanding leaders in the world of information processing: Joel Barker—known for a broad range of strategic exploration tools that improve an organization's ability to shape its own future, and Alan C. Kay—known as the "Father of the Personal Computer";

- **SLA Conference Exhibits:** featuring the latest and most up-to-date resources available on the market today, over 300 exhibitors ready to provide you with the creative strategies you need to mastermind tomorrow's information;

- **Division Programs:** technical sessions, business meetings, as well as informal gatherings designed for individual input on decisions that will impact future growth of the profession;

- **Structured Events and Informal Gatherings:** created to provide all attendees the opportunity to network with friends and colleagues from around the country and around the world.

Full conference information can be found in the *Preliminary Program*— mailed to all SLA members in March 1991. Along with detailed session information, official housing and registration forms will be provided. While program planning is in the process of being finalized, the following information will be useful to all planning to join us in June:

- Reciprocal registration rates apply to members of AALL, ASIS, ARLIA/NA and MLA.

- SLA Registration Fees:

	Member	Nonmember
Advance	$115	$140
Onsite	$145	$175
One Day	$85	$105

- A special registration rate of $65 will be applicable for students and retired individuals.

SLA wishes to assure all attendees that extra ordinary measures have been taken in San Antonio to garner ample hotel accommodations for the 1991 Annual Conference—we will be using eight (8) hotels in downtown San Antonio—and all are within a 10-minute walk of each other and the convention center. Conference hotels are:

Hotel	Single Rate	Double Rate
Hilton	$115	$130
Hyatt	$105	$120
La Quinta	$64	$74
Marriott Rivercenter	$112	$128
Marriott Riverwalk	$105	$120
Menger	$59/73	$73/83
Plaza	$90	$105
Gunter	$80	$90

Flight Information

American Airlines and Continental Airlines have been chosen as the official co-carriers for the 82nd Annual Conference. To make reservations on American call 1-800-433-1790 and ask for "STAR FILE" # S0261GW. To make reservations on Continental Airlines call 1-800-468-7022 and ask for account number EZ6P33. Special rates are available—with some restrictions.

Future issues of *SpeciaList* will feature added conference information as it develops.

Join us! Attend the sessions, visit the exhibits, explore San Antonio, and have fun!!! ■

Spread the News!

Publish News of Your Research in the Journal for Information Professionals

A new column in *Special Libraries,* "Research Activity" is becoming the new network for researchers in information science. First appearing in the Winter 1990 issue of SLA's journal, "Research Activity" provides a forum for researchers to let their colleagues know of the facts, theories, and trends they are unearthing.

Through short descriptions of the research being conducted, as well as contact information for each researcher, the column provides a network of resources for researchers from all sectors of the profession.

Tap into one of SLA's newest informal networks: contribute news of your research for publication in "Research Activity." Send a brief description to Tobi Brimsek, Director, Research, SLA, 1700 Eighteenth St., NW, Washington, DC (202) 234-4700 Fax (202) 265-9317.

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Women's Issues Selections
from
SLA's 1990 Catalog of Publications

These timely publications cover a wide variety of areas within the topic.

The American Woman 1990-91: A Status Report

edited by Sara E. Rix, research director, Women's Research and Education Institute.

1990 420 pp.
(softcover) $10.95

This compilation brings together in a single accessible publication some of the latest research and thinking on the status of American women and their families. Topics include pay equity, child care, affordable housing, minority women, the emergence and growth of women's studies programs, and the Congressional Caucus for Women's Issues in the 101st Congress.

Libraries and Information Centers Within Women's Studies Research Centers

by Grace Jackson-Brown.

1988 34 pp. ISBN 0-87111-333-3
(softcover) $7.00

The role of libraries and information centers that conduct women's studies research id the focus of this work. As organizations they form a powerful information network that provides institutional resources for research by, for, and about women.

Directory of Selected Research and Policy Centers Working on Women's Issues (Fifth Edition)

compiled by Mary Anne Jorgensen.

1989 48 pp.
(softcover) $8.50

This new, expanded edition from The Women's Research and Education Institute covers some 47 U.S.. centers. The directory lists the primary activities and expertise of each center, as well as its address, phone number, and contact person(s). A table organized by subject area allows users of the directory to see what centers are working on any of over 100 topics. An appendix, which contains additional information about research areas, lists centers with special expertise on minority women.

Re-Entry in the Workforce

1989 34 pp. ISBN 0-87111-333-3
(spiral bound) $15.00

This information kit has been developed to address the issues of women re-entering the workforce after either a brief or lengthy hiatus; the material brings together relevant material on the topic as well as provides a brief bibliography of books related to re-entry. The reprinted articles, with one exception, are found outside the library literature. This valuable kit offers an array of materials that portrays a broad perspective on re-entry issues.

For ordering information or the full catalog contact:

SPECIAL LIBRARIES ASSOCIATION SLA

SLA Books, Box SL
1700 Eighteenth Street, NW
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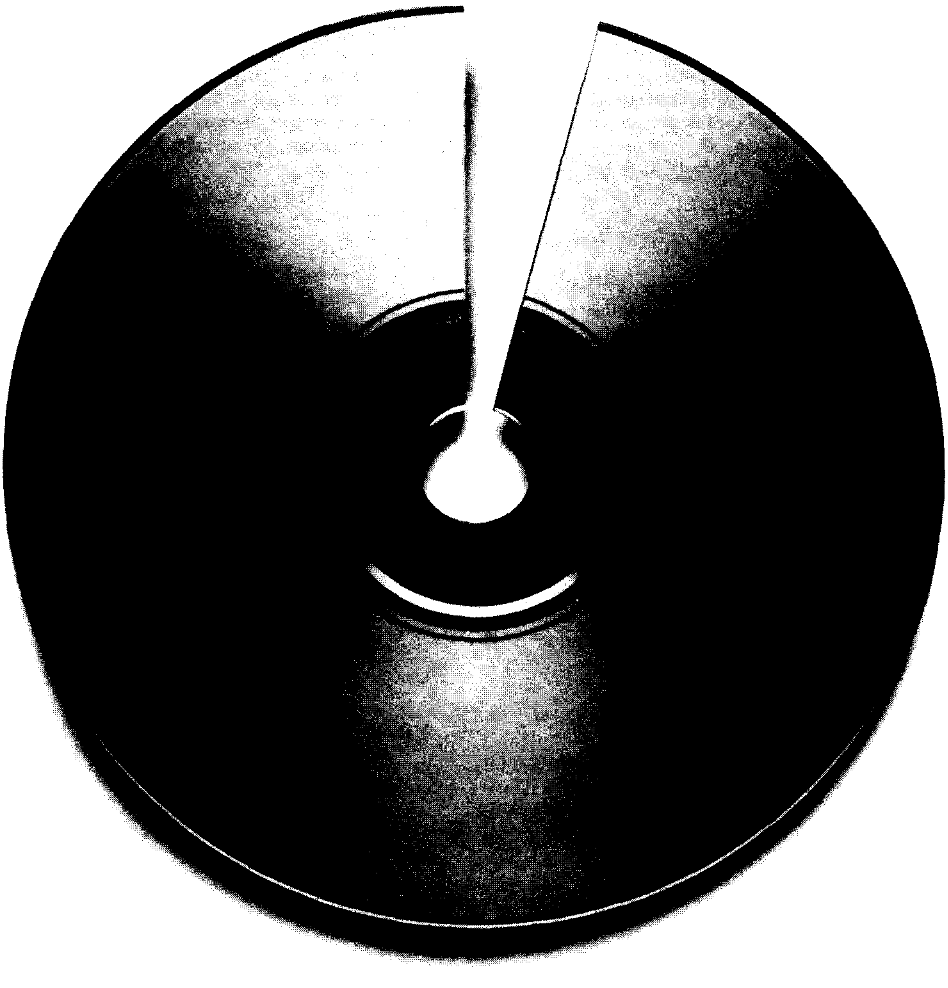

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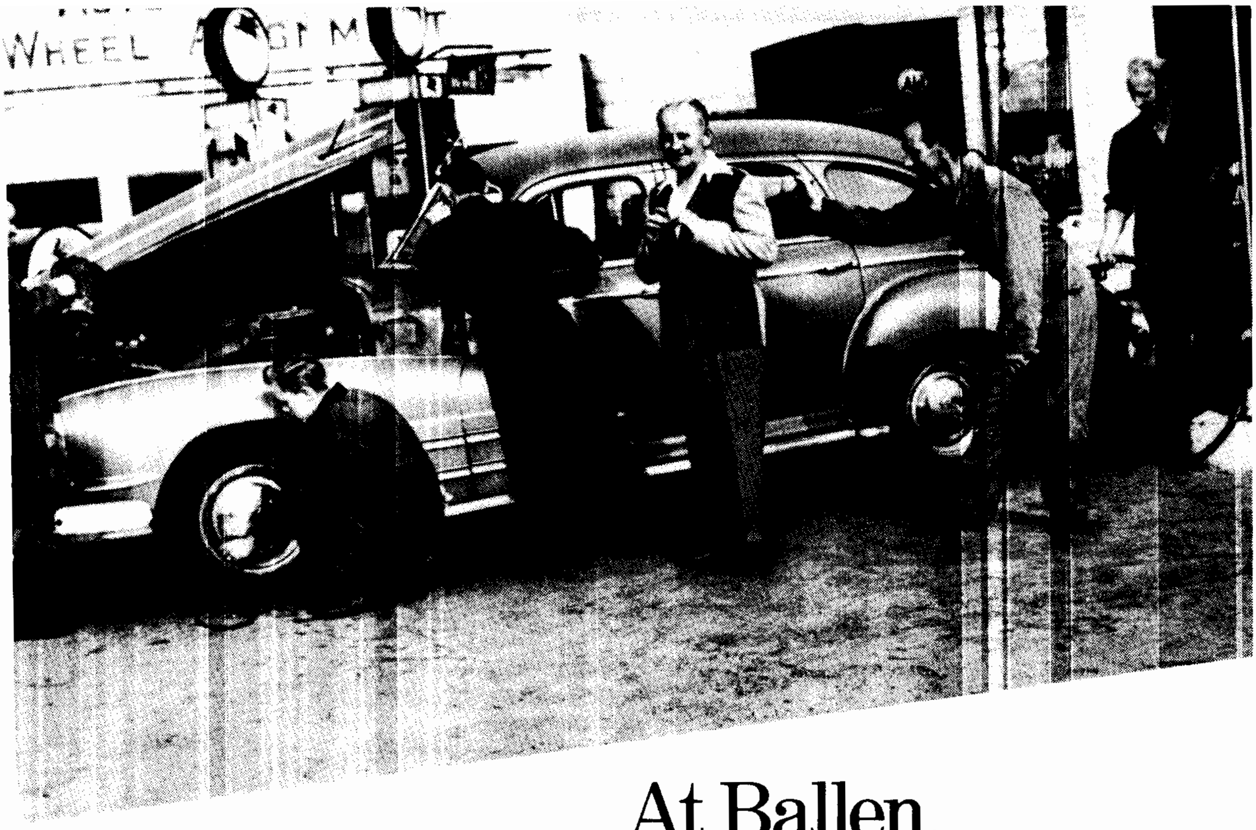


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Contributions are solicited from both members and nonmembers. Papers are accepted with the understanding they have not been published elsewhere. Special Libraries employs a reviewing procedure. When reviewers' comments have been received, authors will be notified of acceptance, rejection, or need for revision of manuscripts. The review procedure usually requires a minimum of eight weeks.

Three types of original contributions are considered for publication: full-length articles, brief reports, and letters to the editor. New monographs and significant report publications relating specifically to library and information science are considered for critical review. Annotations of the periodical literature as well as annotations of new monographs and reports are published—especially those with particular pertinence to special libraries and information centers. Articles of special relevance may be reprinted occasionally from other publications.

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- Put the significance of your paper or a statement of the problem first,
- supporting details and arguments second.
- Make sure the significance of your paper will be apparent to readers outside your immediate field of interest.
- Avoid specialized jargon. Readers will skip a paper they do not understand.
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- Submit recent glossy black-and-white photographs of the authors, if you wish.
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Smith, John and Virginia Dare. "Special Librarianship in Action." *Special Libraries 59* (no. 10): 1241–1243 (Dec 1968).

Smith, John J. "The Library of Tomorrow," in *Proceedings of the 34th Session, International Libraries Institute, city, year. 2v.* city, press, year published.

Featherly, W. "Steps in Preparing a Mertification Program in a Company." ASME Paper 72–

DE–12 presented at the Design Engineering Conference and Show, Chicago, Ill., May 8–11, 1972.

- References to books should be in this order: authors, title, city, publisher, year, pagination.

Brown, Abel. *Information at Work*. New York, Abracadabra Press, 1909. 248 p. Andrei, M. et al. *The History of Athens. The History of Ancient Greece*, 10v. New York, Harwood Press, 1850.

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