
Library Support Staff and Technology: Perceptions and Opinions

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A GREAT DEAL OF THOUGHT and concern has been expended on the impact of technology on libraries and on the individuals who work there. This becomes clear through any extensive review of the literature. Some very fine minds within the professional library community have produced an impressive body of research and writing. However, it is also evident that the equally fine minds of the support staff in libraries have been so busy dealing with the assimilation process, operational problems, and adjustments needed during the technology-acquisition period, that their ideas and analyses of the situation have not had the audience they deserve.

Paraprofessional and clerical employees comprise the bulk of library staffs and they spend more time working directly with computers than do most librarians. They are a highly educated group of people and well able to verbalize what they see happening to library systems, to individuals, and to the quality of services as the computer-technology revolution progresses. It is extremely important, even crucial, that we listen to people who are at the working center of change. Their voices will contribute to a better adjustment to the new age, to a more thorough analysis of problems, and to a clearer insight into what is actually being done, where we are heading, and whether or not we are going where we really want to go.

DESCRIPTION OF THE RESEARCH

Information for this article concerning the attitudes and views of library support staff toward technological change in the library was gathered by means of a questionnaire (see Appendix). The question-

naire was distributed to the support staff of three academic libraries in the United States: the libraries of the University of California at Santa Barbara; of Northern Illinois University in DeKalb; and of the University of Richmond at Richmond, Virginia. One library is located on the west coast, one in the midwest, and one on the east coast. Two of the libraries are part of state university systems, and one is a private university. The sizes range from approximately 4,700 students to 24,300 students. The library support staff sizes were 149, 79, and 39. In all, 267 surveys were distributed and 133 were returned—a response rate of 50 percent. The response rate was, in fact, very close to 50 percent for each of the libraries involved (58 percent, 51 percent, 45 percent). Percentages such as these, or, in fact, any statistics mentioned in this article for specific or separate libraries, will be given in random order so that no particular numbers or responses can be associated with a particular library. The results of the questionnaire for the most part will be presented without drawing many conclusions. It is the opinion of this writer that statistics are almost never absolute or determinative but are very helpful as indicators. There are always unseen and unknown factors present within the populations surveyed, and every human mind which applies itself to the survey questions will include nonmeasurable and uncalculated interpretations of the questions in its responses.

DESCRIPTION OF THE SURVEY INSTRUMENT

The survey consisted of twenty-five multiple choice questions, some of which required only one answer, but several of which allowed the respondent to check more than one answer if more than one applied (e.g., questions four and twenty). The twenty-five questions concerning technology in the workplace were followed by one page of questions concerning the respondent's personal background in terms of education (kind and amount) and library experience (kind and length). Respondents were encouraged to write comments in the margins as they answered the questions. A special place for comments was also included after question twenty-five. All respondents were promised, both in the cover letter which accompanied each questionnaire and at the end of the questionnaire itself: "Individuals who answer this questionnaire will remain anonymous. Results will in no way be presented or tabulated to reflect negatively on a particular library."

RESULTS OF THE SURVEY

General Observations

For eleven out of the twenty-five questions asked, the numerical ranking of the response chosen most to that chosen least was the same for each of the three libraries surveyed as for the composite numerical ranking. For example:

Question 1: Technology has made my work: ____ Easier; ____ Harder; ____ No change.

The results from each library show the term *easier* received the most checks, *no change* ranked second, and *harder* had the fewest checks. This similarity in ranking order between the composite answers and the answers for each library was true for questions 1, 2, 3, 5, 6, 13, 16, 17, 18, 19, and 22. This would indicate a fair amount of congruity of opinion about technological change among the support staff of these varied academic libraries.

Educational Background

Educational background of the 133 respondents is as follows:

<i>Diploma or degree</i>	<i>No. of respondents with diploma/degree</i>
High school diploma	129 (4 respondents omitted question)
Associate degree	25
Undergraduate degree	79 (3 more in progress)
One masters degree	22 (9 more in progress)
Two masters degrees	2
Doctoral degree	3 (1 more in progress)

Percentages of respondents holding various diplomas or degrees are shown in Figure 1. Thirty-one respondents indicated that they had participated in miscellaneous training programs or courses. Subjects of these courses included business and management, computer technology, library science, education, languages, literature, and several others. Of the 133 respondents, fifty-eight (44 percent) said they have at some time taken computer or computer-related courses. Fifty-four respondents (41 percent) have not taken any such courses, and twenty-one respondents (15 percent) did not answer this question.

A listing of the major and minor subjects studied for undergraduate degrees shows a large preponderance of humanities over the sciences. Among the majors listed, there is an approximate ratio of four humanities majors to one science major. This figure is inexact because the boundaries separating disciplines are not clear and are becoming more and more blurred. It is not within the scope of this article to spend a great deal of time sorting and labeling each major subject and then justifying the labels. Suffice it to say that the majority of the support staff respondents have a background in the humanities, but a good many of them are also availing themselves of computer training, information science courses, and business courses as they go along.

Library Work-Experience

The following tables and graphs show the responses to the questions concerning length of library service. Of all the respondents, 81 percent had more than three years' experience working in libraries, and 69 percent of all respondents had more than three years' experience in the library in which they are now employed. These high rates of experience are similar in each of the libraries surveyed:

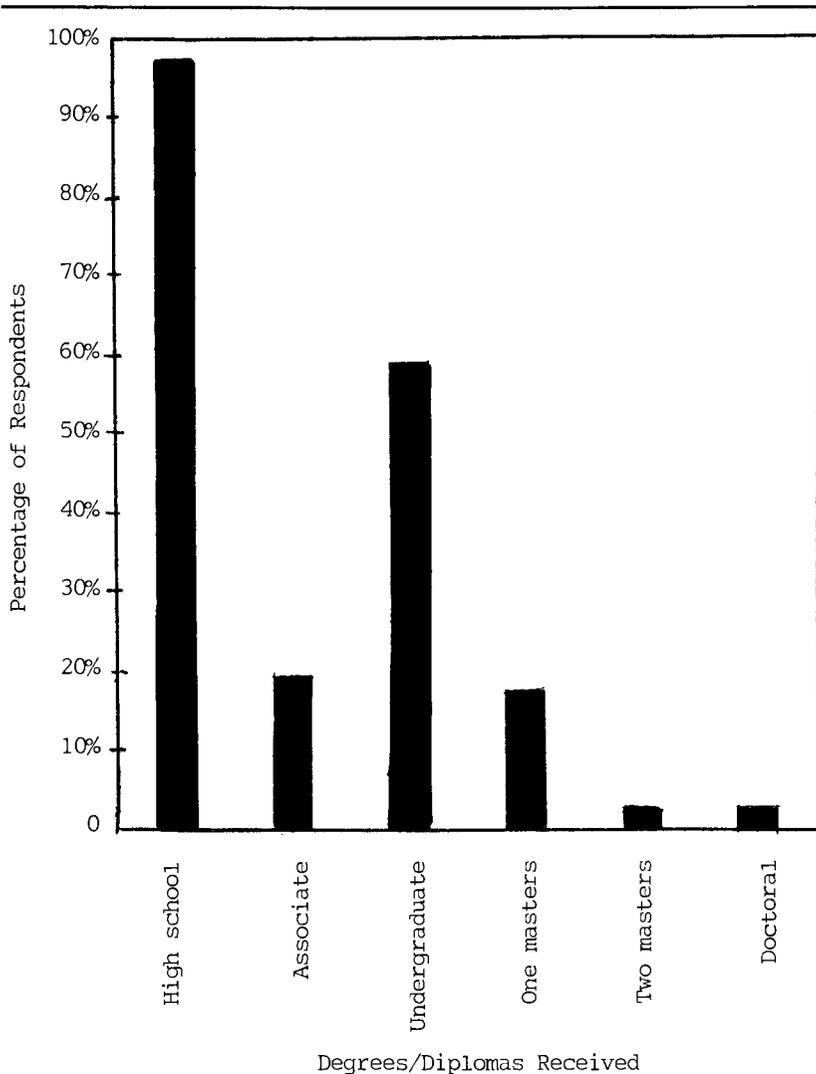


Figure 1. Educational background of respondents (4 respondents gave no information)

	<i>Library A</i>	<i>Library B</i>	<i>Library C</i>
Percent of respondents with more than 3 years' experience in library work.	74%	82%	85%
Percent of respondents with more than 3 years' experience at present library.	67%	69%	70%

TABLE 1
 LIBRARY WORK-EXPERIENCE LEVELS OF 133 RESPONDENTS
 (Any part of a year is counted as 1 year)

No. of years	Number of Respondents		Total experience, any library
	Have worked in present position	Have worked in this library	
0-2	60	32	19
3-5	24	27	26
6-10	25	27	26
11-15	10	18	24
16-20	3	14	18
20+	1	5	12

10 respondents did not answer the questions concerning years of experience.

Most of the support staff have experienced the introduction of new technologies into their work areas and have worked with new technologies for some time. If one postulates that ten years ago very little had yet been introduced in the way of automation, then 41 percent of the respondents have been working long enough in libraries to experience both the virtual absence of high-tech library automation and an extremely strong emphasis on new technology. Fifty-four respondents (41 percent of the total) have had eleven or more years of library work experience.

Personal Reactions to Working with New Technologies

In question 4, respondents were given a choice of nine words to describe their feelings about working with computers. They could check as many of the words as described their feelings. Fifty-one respondents checked *only* positive terms (excitement, enjoyment, pleasure, competency). Fifty-two checked a mixture of positives and negatives. Twenty-six respondents checked only negative terms (tolerance, irritation, dislike, inadequacy, frustration). While "tolerance" is a somewhat ambivalent term when trying to define it as positive or negative, it was placed in the negative category (as denoting some skepticism) to arrive at the positive/negative figures mentioned earlier. However, thirteen of the twenty-six all negative responses had checked only "tolerance" which by itself is not a wholly negative term. Five respondents in the "mixed term" category had checked "tolerance" as their only negative term, all others being positive. So one could interpret the positive/negative balance as follows: fifty-six all-positive responses (i.e., all positive or positive + "tolerance"); forty-seven mixed positive and negative responses; thirteen where "tolerance" was the only response; and thirteen all negative responses. Either set of statistics indicates basically positive feelings mixed with some reservations and a strong strain of frustration. Similar responses are indicated in the answers to question 5:

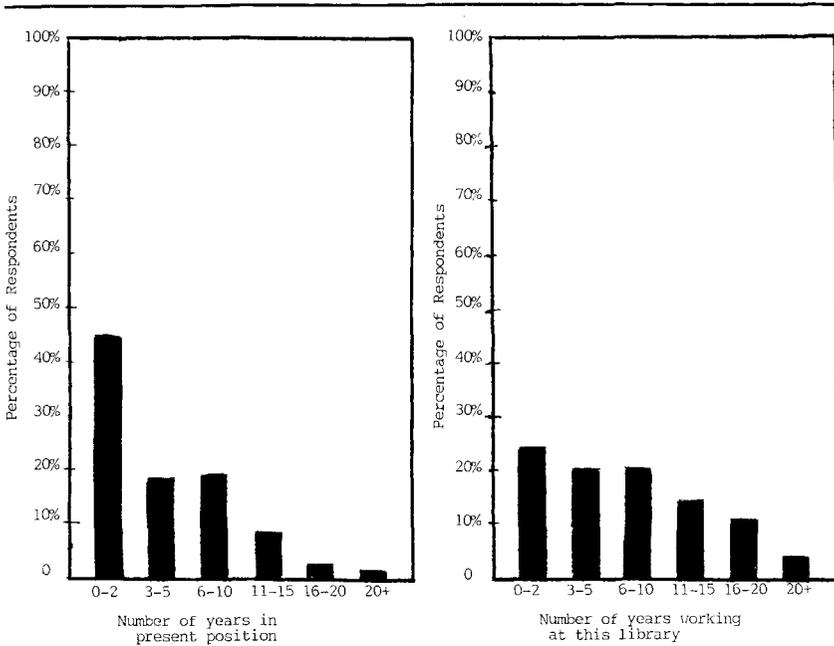


Figure 2.

When I have to learn a new technology I:

<i>Response choices</i>	<i>Number of responses</i>
Want to learn it, but feel uneasy	56
Look forward to learning it	67
Dread learning it	2
Have no particular reaction	13

In each of the three libraries surveyed, the numerical ranking order of answers was the same with "Look forward to learning it" highest and "Dread learning it" lowest in number of responses.

The responses to question 9 were spread more evenly over the five possible choices than was true for any of the questions discussed thus far:

Question 9: Do you feel that automation basically:

<i>Response choices</i>	<i>Number of responses</i>	<i>Percentage of responses</i>
Leaves people more free to be creative	31	23
Dehumanizes people	12	9
Does both of the above	28	21
Does neither of the above	40	30
No opinion	22	17

It is interesting that the "no effect" answer ranks higher than any single "has an effect" answer. We might digress to look at question 22 concerning whether or not people have been replaced or displaced by machines. Question 22 also drew a strong "no effect" response (76 out of the 133

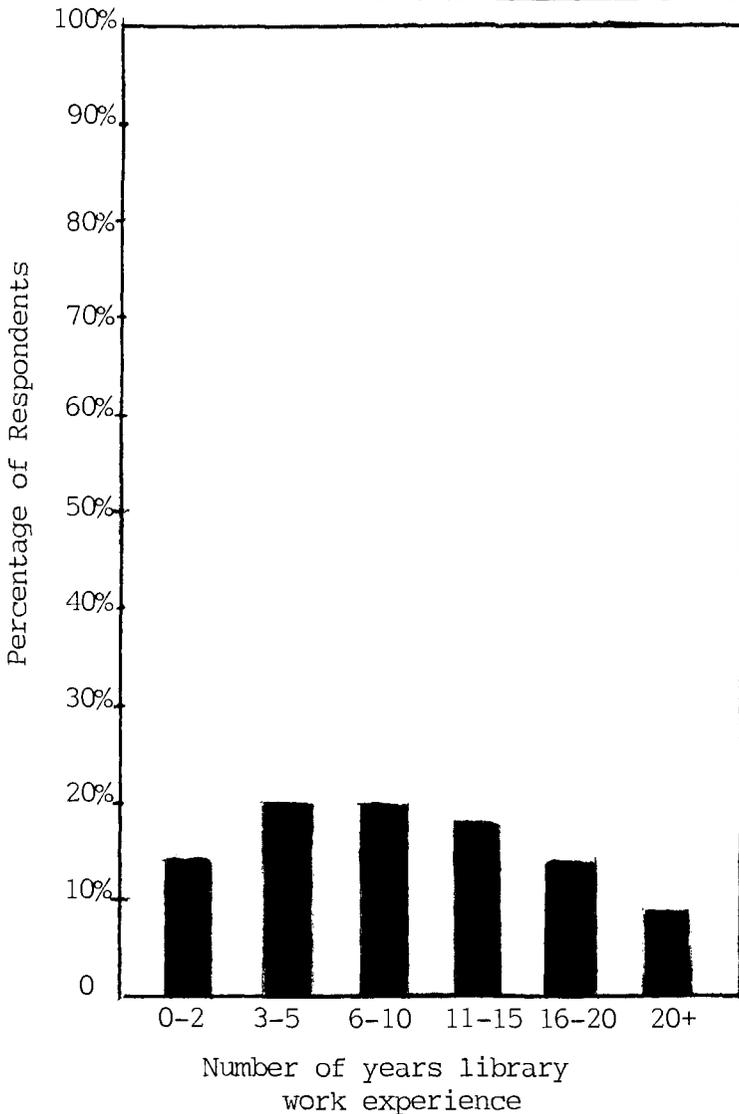


Figure 3.

responses). The responses to both of these may indicate that some of the feared results of automation in the library, such as loss of jobs by transference of activities from people to machines, or diminution of the importance of the individual, are either not happening in the library, not perceived as happening in the library, or, if they are happening, are no longer feared. In the case of question 9, however, while the "no effect" answer draws strong response, there are more people (seventy-

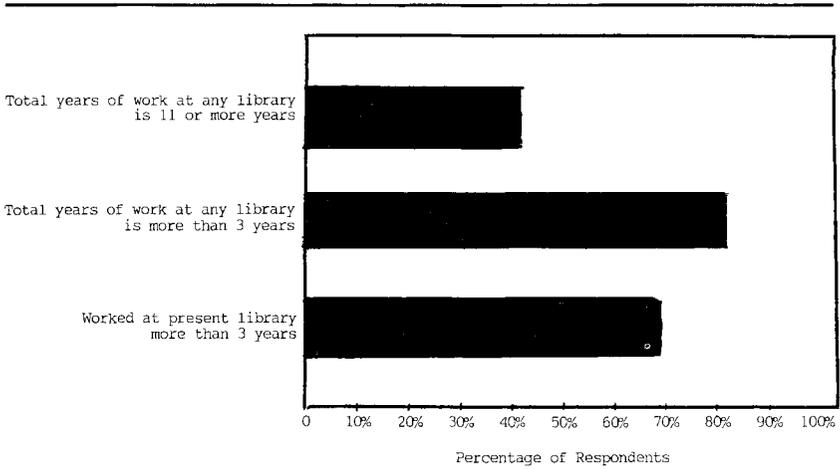


Figure 4.

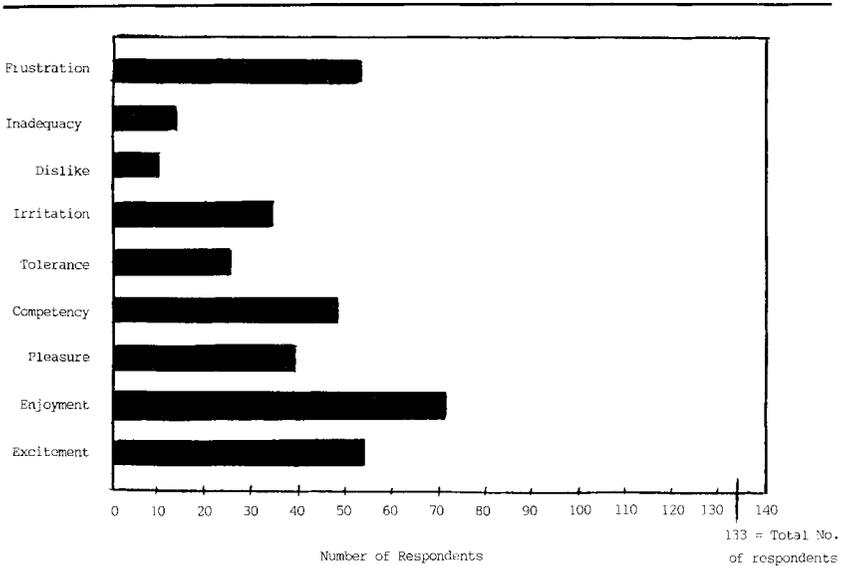
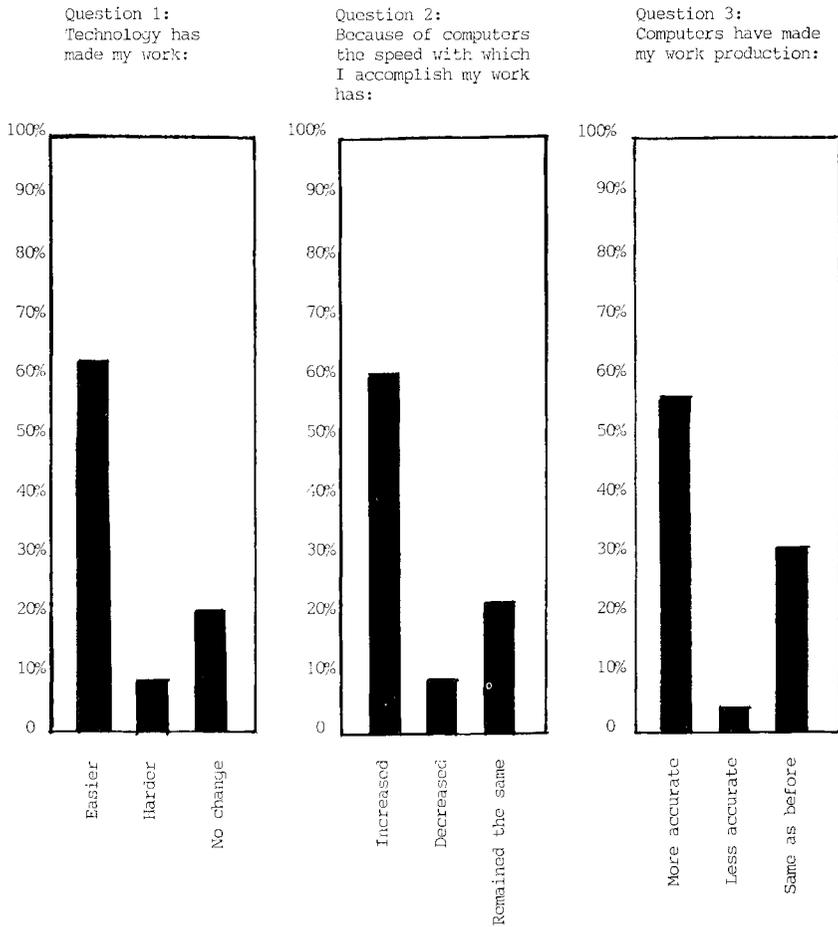


Figure 5. Personal feelings or reactions concerning working with computers (respondents could check any that applied)

one or 53 percent) who believe that automation does have some effect, either leaving people more free to be creative, dehumanizing people, or doing both. In each library polled, the “dehumanizes” answer is the lowest of the three “does have an effect” responses, and “free to be creative” or “both of the above” are numerically very close.



7% to 8% of the responses to questions 1, 2, and 3 were either ambivalent (easier and harder, etc.) or "no answer".

Figure 6. Effect of technology on performance of tasks

Staff Training for Use of New Technologies

Support staff opinions concerning the training they receive in the new technologies introduced into their worklife is more definite than opinions concerning philosophical questions.

Question 10: Has the training you received in new technologies with which you work been:

Response choices	No. of responses
Excellent	6
Very good	23
Moderately good	57
Not very good	21
Poor	11
Nonexistent	16
No answer	6

Several people indicated variations in the quality of their training (total of 140 answers from only 133 respondents). The largest number of respondents say their training has been moderately good (fifty-seven). This is also true within each separate library surveyed. If we group the responses, the positive/negative balance looks like this: positive (excellent, very good, moderately good), eighty-six responses; negative (not very good, poor, nonexistent), forty-eight responses. The preponderance of positive over negative was not the same for the separate libraries. In one library, the composite negative responses were slightly larger than the positive. Overall, however, support staff views of training are quite positive but leave plenty of room for improvement. Respondents were very sparing of their use of the term "excellent"—even more so than of the terms "poor" or "nonexistent."

The majority of respondents (59 percent) have at least an undergraduate degree, 23 percent either have or are working toward a masters degree, and many have taken miscellaneous post-high school training programs and courses. Obviously they are a group of people who have been exposed to many kinds of teaching and are well qualified to make judgments which could guide us toward better technology-training programs in libraries.

Question 12 is similar to 10 but is less personal. It allows the respondents to broaden their answers to include not just their own training, but the climate of opinion gleaned from conversation with colleagues and observation of the whole library training program.

Question 12: How would you rate the quality of your library's technology-training program for support-staff?

<i>Response choices</i>	<i>No. of responses</i>
Excellent	4
Adequate	48
Inadequate	36
Nonexistent	25
No opinion	20
No answer	2

"Adequate" is somewhat akin to "moderately good" in question 10 and, similarly, received more checks than any other single answer. It also ranked highest at each separate library. However, negative responses collectively outweighed positive responses: positive (excellent, adequate), fifty-two respondents; negative (inadequate, nonexistent), sixty-one respondents. Negatives outweighed positives in two of the three separate libraries surveyed. The positive and negative responses of the third library were equal.

The need for more and better training is supported in another study on automation and library personnel done by Ganga Dakshinamurti (1985) in Canada. Julie Bichteler (1986), who interviewed thirty-two individuals engaged in a variety of computer-based activities, reports:

The major source of technostress among those interviewed was the inadequate training that was provided for both hardware and software. Although training for database searching by the major vendors was quite satisfactory, training for

other systems used by the library was frequently poor to non-existent. The problem appears to be two-fold: available documentation is often misleading, inaccurate, incomplete, or overly complex; and too little time is allowed for studying the documentation....In one library, several new users quit the current series of training sessions. They felt the pressure of their own jobs, which were not getting done, and just couldn't take any more time off....And when the initial training is satisfactory, people are commonly not given enough time to practice what they have learned. (pp. 126-27)

Careful attention both to technology, the good and bad attributes of manuals accompanying technology, and the different learning styles of individuals is necessary to improve the effectiveness of training programs (Baskin & Spencer, 1983; Dayall, 1987).

Question 11 had to do with what training modes support staff felt to be most effective. For this question there was no sameness of numerical-rank order of answers among the three libraries. However, workshops, supervisor teaching, and manuals emerged as preferred learning resources in all three libraries.

Question 11: Do you prefer to learn how to use new technologies:

<i>Response choices</i>	<i>No. of responses</i>
In a structured class	21
In a workshop	57
From your supervisor	44
On your own with a manual	41
From a friend	20
Not at all	2

Quite a few respondents indicated a liking for more than one learning/teaching vehicle (185 responses from 133 people). It would be interesting to find out how much the preferences are related to the amount and kind of time available during the workday for learning activities. One of the ingredients for success listed in a case study of change management at Northwestern University's Schaffner Library was: "allocation of time for staff development" (Steffan, 1987, p. 129).

The responses to question 7 indicate that support staff on the whole do not feel that they are expected to learn too much too fast; rather, they wish that technology would be introduced more quickly into their work scheme (see question 8). However, there is a fairly strong segment of respondents who feel ambivalent or have no opinion.

Question 7: Do you feel that library employees are expected to learn too many new things too fast?

<i>Response choices</i>	<i>No. of responses</i> (from 133 respondents)
No	71
Yes	32
No opinion	26
No answer	4

The "No" response to this question was highest at each of the libraries.

Question 8: Do you feel the pace with which new technology is introduced into your work area is:

<i>Response choices</i>	<i>No. of responses</i> (from 133 respondents)
Too fast	21
Too slow	51
Just right	53
No answer	10

Two people felt that the pace has sometimes been too slow and sometimes too fast.

Work Performance

There were three questions that had to do with the individual respondent's feelings about the effect of technology on the performance of his/her work. The response to these questions is generally positive. However, the number of neutral responses suggests that quite a few staff people feel that technology has not made a great deal of difference. Of the respondents, 21 percent said that technology has made no change in the ease or difficulty of their work, 22 percent of respondents said that technology has made no difference in the speed with which they accomplish their work, and 31 percent of respondents said that their work production is neither more nor less accurate than before.

Responses to question 15 reveal a strong opinion (57 percent of respondents) that, overall, technology has improved the accuracy of the records kept in the library.

Question 15: Do you feel that, overall, technology has improved the accuracy of the records kept in your library?

<i>Response choices</i>	<i>No. of responses</i>	<i>Percentage of total responses</i>
Yes	75	57
No	27	20
No opinion	31	23

Responsibility and Reward Changes

The introduction and assimilation of technology into work patterns and procedures seems to have increased the responsibilities of 55 percent of the respondents without increasing even one paycheck.

Question 18: Do you feel that technological advances have:

<i>Response choices</i>	<i>No. of responses</i>	<i>Percentage of total responses</i>
Added more responsibilities to your job	73	55
Diminished the responsibilities of your job	3	2
Had no effect on amount of responsibility you carry	51	38
No answer	6	5

Question 19: If technology has added more responsibility to your job, do you think this added responsibility is reflected in your (check any that apply):

<i>Response choices</i>	<i>No. of responses</i>
Paycheck	0
Job description	23
Respect shown to you	8
None of the above	63
No answer	40

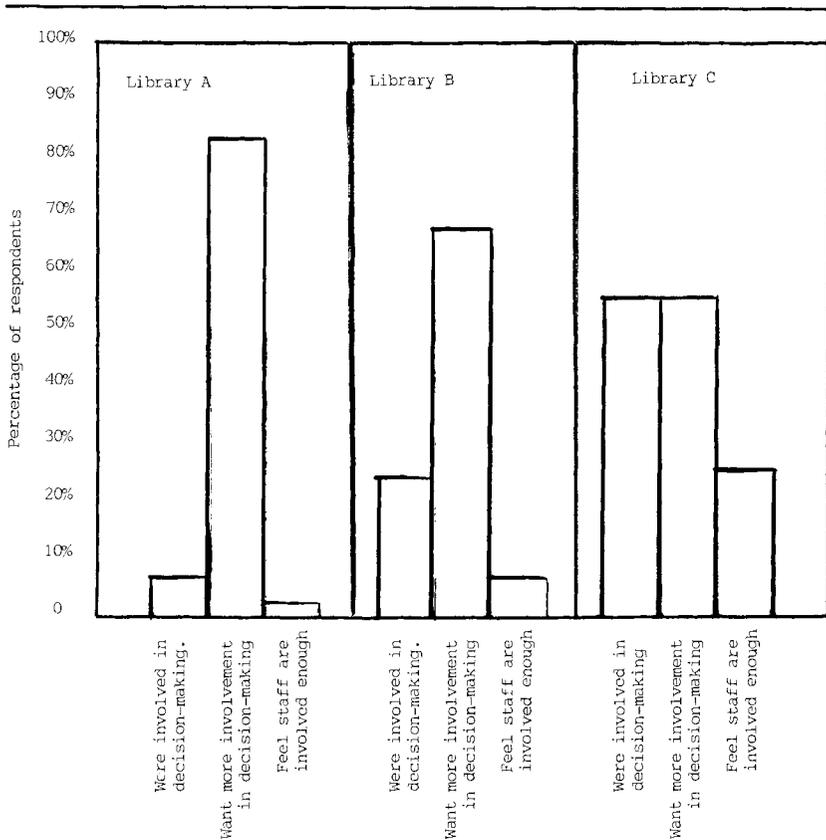


Figure 7. Decision-making during acquisition/incorporation of technology

In question 18, note that fifty-one respondents (38 percent) felt that technology had added no responsibility to their jobs. Of the answer choices in question 19, only "Paycheck" and "Respect shown to you" could really be construed as "rewards" for greater responsibility. Eight respondents felt they received greater respect because of their additional responsibilities. Adding new responsibilities to job descriptions (twenty-three responses) may constitute recognition but not reward. It could perhaps form the basis for future reward. Most support staff in each academic library felt their efforts and added responsibilities were unrewarded except as these made their work easier (see questions 1 and 2). One respondent commented that there was greater "job satisfaction," but there were more comments such as: Added responsibility reflected in my paycheck? "Definitely not." "Never." "I wish!!!" "Not here!" "Technology...greatly increases productivity and responsibility of the staff operating them. It would be nice if it was reflected in the paycheck."

Personnel Changes

There seems to have been a good deal of fluctuation of personnel numbers and also of the balance between support staff and professional librarians. But the fluctuation patterns are different for each library. For example, in one library, more people reported increased support staff in their departments than any other change. Another library's respondents had many reports of "reduced support staff," and the largest number of respondents in the third library reported "no change." In all three of the libraries surveyed, the support staff tend to feel that the introduction of technology is not the cause of their personnel changes. There is also a strong opinion that people have been neither replaced nor displaced by machines (see question 22).

Question 20: During the past five years your department has (check any that apply):

<i>Response choices</i>	<i>No. of responses</i>
Increased the number of librarians	20
Reduced the number of librarians	26
Increased the number of support staff	36
Reduced the number of support staff	44
Made no change in number of personnel	31
No answer	8

Question 21: Do you feel that technology is responsible for the personnel changes indicated in question 20?

<i>Response choices</i>	<i>No. of responses</i>
Yes	14
No	59
Partially	22
We had no changes in number of personnel	26
No answer	11

Question 22: Do you think people have been:

<i>Response choices</i>	<i>No. of responses</i>
Replaced by machines	6
Displaced by machines	14
Both replaced and displaced by machines	30
Neither replaced nor displaced by machines	76
No answer	6

Question 23 dealt with reactions to staff changes. The response options have been arranged here in numerical-rank order, high to low.

Question 23: Which phrases below describe your feelings about the displacement or replacement of people by machines in your library?

<i>Response choices</i>	<i>No. of responses</i>
There has been no displacement or replacement of people by machines	51
Overall, personnel adjustments have been good	30
We are no better off than we were before	23
People are not happy with changes	19
We have a better organization	15
People have been treated fairly	10
I feel good about the changes	9
People have been treated badly	9
It makes me angry	4

Twenty-two respondents chose not to answer this question at all. It may be observed that the least personal responses were chosen the most and

the most personal responses ("I feel good" and "It makes me angry") are low on the list. The responses in which the respondent is somewhat personally involved, but only as part of a group (those beginning with "we" or "people"), fall in the middle. The overall response tends to be neutral:

There has been no displacement or replacement of people	}	74
We are no better off than we were before		
or positive:		
Overall, personnel adjustments have been good	}	64
We have a better organization		
People have been treated fairly		
I feel good about the changes		
The negative responses were fewest:		
People are not happy with the changes	}	32
People have been treated badly		
It makes me angry		

Philosophical or Social Implications

Two questions dealt with how support staff viewed the present technological revolution as social history. Do they feel that the human mind is still in control of its creations? Do they feel threatened or manipulated by machines?

Question 16: Do you feel that people are the masters and technology is a tool we are using wisely?

<i>Response choices</i>	<i>No. of responses</i>	<i>Percentage of total responses</i>
Yes	75	56
No	30	23
No opinion	28	21

The "yes" responses from each library were highest in numerical rank, though the numerical rank of "no" and "no opinion" responses varied.

Question 17: Do you believe that technology is becoming master, and people are becoming its subjects?

<i>Response choices</i>	<i>No. of responses</i>	<i>Percentage of total responses</i>
Yes	29	22
No	77	58
No opinion	27	20

In each separate library, the numerical ranking of the answers follows this pattern: "No" is highest, "yes" or "no opinion" are the same or very close. In none of the libraries do the "yes" or "no opinion" options combine to total as much as the "no" answer.

The conviction that we are using new technology wisely and maintaining human control is strong, but there is also a fairly strong cautionary element.

Administration of the Automation Process

These questions deal with support staff opinion on how the conversion from manual to automated systems and computerized activities is being managed.

Question 6: Do you believe that most libraries should move into new areas of technology as quickly as they can afford to do so?

<i>Response choices</i>	<i>No. of responses</i>	<i>Percentage of total responses</i>
Yes	63	47
No	9	7
No opinion	11	8
The question is too simplistic to answer as stated	50	38

There is an assumption contained within the “yes” answer that the new technologies are basically desirable, and we should therefore acquire them as quickly as possible. However, there was a strong 38 percent that felt the question was too simplistic and could not be answered without qualifying statements.

Question 13 is less generalized and focuses the attention of the respondents on the technological progress of their own libraries.

Question 13: How would you rate your library’s progression toward automation?

<i>Response choices</i>	<i>No. of responses</i>	<i>Percentage of total responses</i>
Too fast	13	10
Too slow	61	46
Just right	42	32
No answer	17	12

The “too slow” choice is ranked highest in each library polled, and “just right” fell just below it in each case. Support staff seem to feel that we should move toward automation at a faster rate than we are now moving, though a strong minority of respondents (32 percent) feel their own library is progressing at a good and acceptable pace.

Respondents were, however, more satisfied with progress toward automation in their own departments than they were with progress in their libraries overall.

Question 8: Do you feel the pace with which new technology is introduced into your work area is:

<i>Response choices</i>	<i>No. of responses</i>
Too fast	21
Too slow	51
Just right	53
No answer	10

A couple of respondents felt the pace had been sometimes too fast and sometimes too slow, but the “just right” option received the most checks. Of the seventy-two responses indicating a desire for a change of pace, a strong majority (fifty-one out of seventy-two) felt the pace should be speeded up.

When asked which library department had made the greatest technological strides, the cataloging department came out on top in each library. After that there was a great deal of variation among the libraries.

Question 14: In what department of the library do you think the greatest positive technological strides have been made? The composite responses were:

<i>Response choices</i>	<i>No. of responses</i>	
Cataloging	65	} Technical services ► 83
Acquisitions	13	
Serials management	5	
Reference/research	26	} Public services ► 71
Circulation	26	
Interlibrary loan	18	
Other (please list)	1	
Patron access	1	
No answer	29	

Support staff overall seem to feel that technology has had a greater effect on cataloging departments specifically than on any other single department. However, there were fifty multiple answer responses indicating that a significant number of respondents see equal progress in more than one area of the library. While support staff see technical services collectively as having an edge on technological progress, the awareness of progress in public service areas is strong. Patron access was mentioned specifically by one respondent. Online catalogs and subject-organized periodical databases are no longer “in group” terms. There was, however, some hesitancy on the part of respondents to make statements which presumed knowledge of activities in departments other than their own. This was evident from comments made by some of the twenty-nine people who omitted answering question 14. The numerical breakdown of respondents by the divisions they work in is as follows:

Technical services	62
Public services	29
Subject-specialized libraries or departments	27
Administration	9
No answer	12

Six of the respondents work in more than one department. Several respondents omitted answers to this question as well as other questions on the “personal background” part of the questionnaire because they felt it threatened their anonymity.

Decision-Making and Management Style

The responses to question 24 revealed more variance in opinion among the three libraries which participated in this survey than did responses to other questions.

Question 24: Were you involved at all in the decision-making process concerning the incorporation of new technology into your work area? Composite results were as follows:

<i>Response choices</i>	<i>No. of responses</i>	<i>Percentage of total responses</i>
Yes	31	23
No	97	73
No answer	5	4

The feeling of involvement in the decision-making process, as indicated by a "yes" answer, differed radically among the three libraries: *library A*, 7 percent yes; *library B*, 24 percent yes; *library C*, 60 percent yes.

In response to question 25, an overwhelming majority of ninety-five respondents (71 percent) feel that staff should be more involved in decisions.

Question 25: Do you think support staff should be more involved than they are at present in decisions about acquiring new technological devices or systems?

<i>Response choices</i>	<i>No. of responses</i>	<i>Percentage of total responses</i>
Yes	95	71
No	10	8
No opinion	24	18
No answer	4	3

More than 50 percent of the respondents at each of the separate libraries surveyed felt that support staff should be more involved than they are at present; but the feeling of satisfaction increases (illustrated by "no, I don't think staff should be more involved") as the percentage of involvement increases.

Some of the comments made on the questionnaire concerning staff involvement in decisions follow:

"The librarians do make the decisions...[the support staff] can add valuable input that has been overlooked."

Involvement consisted of "demonstrations of various systems [to us]...Planning by management is minimal because they do not bother to consult the people who do the work...and many processes are left out of consideration because of lack of knowledge of procedures."

"The administration doesn't seem to be aware of how even a small change in one department can affect another department. I think if staff were more involved, or at least *informed* of changes, they could help anticipate effects...."

"[Support-staff] should be consulted as we are the people who work every day with the computers."

"People will only accept technology to the extent that they are included in the decisions about adding new technologies and to the extent that they are well-trained."

"Support staff should always be consulted about any new type of equipment purchased. Their experience and knowledge is valuable." (This comment is from a staff member who was consulted).

Support staff do not feel that they have been involved in the decision-making process as they should have been. This does not, however, prevent support staff from maintaining positive feelings about the technology itself (see questions 1-4, 6, 8, etc.). Neither does it stifle willingness to work hard and expend extra (and unrewarded) effort to assimilate the new knowledge and skill required by the innovations. This is evident, at least by inference, in the responses to questions 5, 7, 10, 11, 18, and 19.

COMMENTS AND OBSERVATIONS

The overall results of the survey indicate an exceedingly positive attitude, even though there is a strong undercurrent of personal frustration and irritation. There is evidence of an intense desire to learn and to

fit into the rapid flow of new technology. Judging from the kinds of responses given to the questions, it seems that academic librarians and administrations should feel confident that the work assigned to support staff will get done and the transition to automation will be made in spite of concerns about health or about the human personality and its ability to handle stress or maintain traditional patterns of social interaction.

There is some concern expressed, both in library literature and in the responses to the survey, that long hours spent exchanging information with computers will cause changes in the human personality. A paper by Julie Bichteler (1986) concerning the effects of changing work environment on information specialists says:

The three programmers who were interviewed all stated that their personalities had changed as they became more computer-oriented. They are more organized and feel themselves to be more efficient. "I'm impatient with unorganized, illogical people." "I feel that my mind works like a computer now."... They find it hard to communicate with nonprogrammers and vice versa.... Some people feel more comfortable interacting with humans through a computer rather than by telephone or face-to-face.... "Using E-mail, one talks a lot and then it's the other person's turn to talk a lot. Since we get used to operating in little wads of thought, when you see someone in person, you tend to say what you have to say all at once, and then it's the other's turn." (pp. 125-26)

At a less profound level, it is known that the performance level of the computers we work with can make or break a work day and cause one to go home happy or ready for conflict. We also tend to begin thinking in terms of the short-hand language of computers and become irritable when library patrons or fellow workers in other departments don't know what we're talking about. These are illustrations of ways in which computers do, perhaps, govern us. Awareness of this may help us to align ourselves with fellow human beings and become more patient interpreters.

The questionnaire does not measure the motivational or causal factors behind the attitudes. Positive attitudes can help people to deal with the inevitable, learn with less stress, and incorporate helpful advances into work patterns. It might be prudent, however, to realize that positive attitudes can sometimes be a cover-up for fear or confusion. Big corporations are driving hard for computer hardware and software sales. The influence of technology advertising, coupled with the conviction that we must appear open-minded, objective, flexible, and progressive in order to move ahead in our jobs, can blind us to the very real problems which fast automation brings to us, fellow employees, and patrons. Even those who are expert in the use of new systems and new technical apparatus cannot help but note the problems caused when all the computers "go down" or note the confusion of patrons confronted by an entirely new procedure for getting what they want from the library. To have a positive attitude and, at the same time, to accept the fact that real problems exist both in the machines and in the education process necessary for the efficient use of the machines will ensure real

progress. Real progress demands careful, thorough education, and education takes time and effort. However, this time and effort will surely be well spent if the technological progress made includes the welfare of employees and the satisfaction of patrons.

During transition periods, there are many decision-making crossroads where we can choose destruction of the past to change the future, or we can choose building upon the past to change the future. Destruction has often, historically, caused trauma which might have been avoided by persistent but gradual introduction of change backed by the conviction that employees who have been intelligent, creative, and conscientious in the past will continue to be so if they take part in the decisions of the change process. Pro-industrial revolution historians of the past usually labeled the Luddites of the nineteenth century as "crazy people" when they opposed industrialization by smashing machines. Some contemporary historians are beginning to see them as realists who were simply unwilling to contribute to the destruction of a present "good life" for themselves and their families by supporting or even tolerating changes which would only benefit some unknown future generation (Noble, 1983; Gray, 1983; Wolin, 1983). Would the Luddites have been so volatile if they had felt that their job security and welfare were of concern to their employers and that they were not to be sacrificed to make other people rich?

We must all, support staff and professional staff alike, try to come to grips with the questions of what we really want or need among the new technological devices. Do we need it, and does it help us accomplish goals or are we simply convinced that anything new will inevitably become a part of our work lives and so we accept and apply ourselves to its assimilation as an act of self-preservation? We must not stop asking the questions: Is it helpful? Does it take us where we want to go? Is it constructive technology which will help make lives better? Perhaps the transitions taking place in these revolutionary times can happen with less sacrifice and more joy if we will listen to the suggestions of staff without first putting up all kinds of defenses. Beth Sanderbeck, describing her experiences as supervisor of a retrospective conversion project which entailed hiring a new staff and working under strict deadlines, writes: "In retrospect I don't believe I would have done anything different. The same staff members who criticized rules and made accusations were also capable of analyzing and improving procedures. Their suggestions, concerns and hard work made the project a success" (Sanderbeck, 1986, p. 20).

Perhaps the most important contribution to progress and advancement right now would be intensified interdisciplinary discussion among technologists, information specialists, educators, librarians, theologians, and sociologists. We are all part of a revolution which is changing ways of living, ways of thinking, and patterns of conversation and discussion.

Technology is, of course, as old as civilization. Today its novel feature is its planned, systematic development. Technology is no longer the spontaneous creation of an obscure genius, "the Wizard of Menlo Park," but a product of economic and industrial strategies...examples of the penetration of science and technology could easily be multiplied until in the end it would be clear that we have become a society constituted primarily by these two forms. As our ideal of genuine knowledge, science is our theory, while technology, as our ideal of useful knowledge, is our practice. The combination has left its mark on how we live, as individuals and as a collectivity. It has made many necessities mere matters of convenience. Many areas of life are now safer, healthier, and more productive. Above all, our powers have been magnified beyond those available to any previous society...Once we lived expectantly, waiting for the latest scientific breakthrough and technological marvel; now we live somewhat nervously in the shadow of any number of potential, even imminent disasters. Our new society should remind us that technology and science are neither neutral nor independent nor unambiguous. (Wolin, 1983, p. 67)

It is not enough that each discipline discusses the human issues of technology at their own conferences and in their own professional journals. It is necessary that we talk together and listen very carefully to one another. Librarians and support staff taken together will probably, in many libraries, include some of all these specialists. Library workers come from amazingly diverse backgrounds. The support staff members who responded to this survey have a record of 106 completed college degrees and 13 more in progress—an impressive accomplishment and a rich resource. Therefore, we can begin by talking together as a whole library, establishing firm guidelines and goals, sorting out what is best among myriad technological offerings, and devising ways of learning that enhance rather than diminish the human personalities involved.

Appendix

Library Support Staff Views on Technological Change in the Work Place

A Questionnaire

There will be a place for comments at the end of the questionnaire in case you wish to explain or qualify an answer. Also, feel free to write comments in the margins as you work through the questionnaire.

List any technological equipment or processes that have altered your job during the past ten years (e.g., word processor, automated circulation system, a CD-ROM Index, etc.):

Please check the word or phrase that best completes or answers the numbered statement.

1. Technology has made my work: ____ Easier; ____ Harder; ____ No change.
2. Because of computers, the speed with which I accomplish my work has: ____ Increased; ____ Decreased; ____ Remained the same.
3. Computers have made my work-production: ____ More accurate; ____ Less accurate; ____ Same as before.
4. My feelings about working with computers are described by the word: (check any that apply): ____ Excitement; ____ Irritation; ____ Enjoyment; ____ Dislike; ____ Tolerance; ____ Pleasure; ____ Inadequacy; ____ Competency; ____ Frustration.
5. When I have to learn a new technology I: ____ Want to learn it, but feel uneasy; ____ Look forward to learning it; ____ Dread learning it; ____ Have no particular reaction.
6. Do you believe that most libraries should move into new areas of technology as quickly as they can afford to do so? ____ Yes; ____ No; ____ No opinion; ____ The question is too simplistic to answer as stated.
7. Do you feel that library employees are expected to learn too many new things too fast? ____ No; ____ Yes; ____ No opinion.
8. Do you feel the pace with which new technology is introduced into your work area is: ____ Too fast; ____ Too slow; ____ Just right.
9. Do you feel that automation basically: ____ Leaves people more free to be creative; ____ Dehumanizes people; ____ Does both of the above; ____ Does neither of the above; ____ No opinion.
10. Has the training you received in new technologies with which you work been: ____ Excellent; ____ Very good; ____ Moderately good; ____ Not very good; ____ Poor; ____ Nonexistent.
11. Do you prefer to learn how to use new technologies: ____ In a structured class; ____ In a workshop; ____ From your supervisor; ____ On your own with a manual; ____ From a friend; ____ Not at all.
12. How would you rate the quality of your library's technology-training program for support staff? ____ Excellent; ____ Adequate; ____ Inadequate; ____ Nonexistent; ____ No opinion.
13. How would you rate your library's progression toward automation? ____ Too fast; ____ Too slow; ____ Just right.
14. In what department of the library do you think the greatest positive technological strides have been made? ____ Cataloging; ____ Acquisitions; ____ Serials management; ____ Reference/Research; ____ Circulation; ____ Interlibrary loan; ____ Other (please list).
15. Do you feel that, overall, technology has improved the accuracy of the records kept in your library? ____ Yes; ____ No; ____ No opinion.
16. Do you feel that people are the masters and technology is a tool we are using wisely? ____ Yes; ____ No; ____ No opinion.
17. Do you believe that technology is becoming master and people are becoming its subjects? ____ Yes; ____ No; ____ No opinion.

Appendix (Cont.)

Library Support Staff Views on Technological Change in the Work Place

A Questionnaire

18. Do you feel that technological advances have: ____ Added more responsibilities to your job; ____ Diminished the responsibilities of your job; ____ Had no effect on the amount of responsibility you carry.
19. If technology has added more responsibility to your job, do you think this added responsibility is reflected in your (check any that apply): ____ Paycheck; ____ Job description; ____ Respect shown to you; ____ None of the above.
20. During the past 5 years your department has (check any that apply): ____ Increased the number of librarians; ____ Reduced the number of librarians; ____ Increased the number of support staff; ____ Reduced the number of support staff; ____ Made no change in number of personnel.
21. Do you feel that technology is responsible for the personnel changes indicated in question 20? ____ Yes; ____ No; ____ Partially; ____ We had no changes in number of personnel.
22. Do you think people have been: ____ Replaced by machines; ____ Displaced by machines; ____ Both replaced and displaced by machines; ____ Neither replaced nor displaced by machines.
23. Which phrases below describe your feelings about the displacement or replacement of people by machines in your library? ____ We have a better organization; ____ We are no better off than we were before; ____ Overall, personnel adjustments have been good; ____ People are not happy with the changes; ____ It makes me angry; ____ I feel good about the changes; ____ People have been treated fairly; ____ People have been treated badly; ____ There has been no displacement or replacement of people by machines.
24. Were you involved at all in the decision-making process concerning the incorporation of new technology into your work area? ____ Yes; ____ No.
Please describe the nature and extent of your involvement, if any.
25. Do you think support staff should be more involved than they are at present in decisions about acquiring new technological devices or systems? ____ Yes; ____ No; ____ No opinion.

Please comment on any of the above questions, or share any other thoughts you have on the effects of technology in the library, on your job, etc.

PERSONAL BACKGROUND

Education

Do you have a high school diploma? ____

Do you have:

An associate degree (A.A. etc.) ____

An undergraduate degree (BA, BS, etc.) ____

One masters degree ____

Two masters degrees ____

Ph.D. degree ____

Other degrees, training, or courses ____

Please describe "other degrees, training, or courses:"

What was your major subject(s) in college? _____

What was your minor subject? _____

What were your post-graduate study subject areas? _____

Have you at any time had computer or computer-related courses? _____

If so, please describe:

Experience

In what library department do you work? _____

How long have you had your present position? _____

What is your job title? _____

What were your previous job titles? _____

How long have you worked at this library? _____

What is your total number of years of library work experience? _____

Comments or additional information:

Individuals who answer this questionnaire will remain anonymous. Results will in no way be presented or tabulated to reflect negatively on a particular library.

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