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## Technology and the Academic Library Staff or the Resurgence of the Luddites

This clinic program announces that I intend to address the human factors involved in library automation in academic libraries. It is tempting to begin this talk by discussing the impact of technology upon academic library staff with a lead into the competencies that idea assumes. If I began in that way, I might begin with certain assumptions. Some of the assumptions held by many attending this conference might include:

1. that the application of technology in libraries will result in benefits to staff and users;
2. that technology is the inevitable wave of the future; and
3. that as librarians, if we do not embrace technology, we will be left to fade into oblivion in our museums full of books.

I prefer not to begin with those assumptions because I feel we have not fully explored the philosophical and ideological foundations of our views about the use of technology. The time available does not permit a full exploration of the philosophical and ideological foundations of our assumptions concerning technology. However time does give me an opportunity to pose some questions and to begin a dialogue among librarians concerning the human factors impacted by library technology. The beginning thesis of my discussion is drawn from a broader look at technology. It is my assertion that the ideological problems in technological applications in libraries result "from a fatalistic and futuristic confusion about the technological development, and this intellectual problem is rooted in, reinforced by, the political and ideological subordination of people"<sup>1</sup> in the work environment and at the point of service.

We are so enamored by the promises of the future applications and possibilities of technology that we lose sight of the human cataloger,

serials clerk and the library patron. We promise increased control and a decrease in the rise of per unit costs of processing materials, but fail both to measure the human costs, and to assess the reality of the new application of technology.

I propose that we must take a multiple perspective approach to the analysis of human factors impacted by library technology. Any technological application in libraries must have the support of three distinct groups to achieve the greatest success:

1. the administration or funding agency must support the concepts initially so adequate funding can be secured;
2. the library staff responsible for implementing and using the system must be supportive or subtle, or not so subtle—sabotage may ensue; and
3. the users of the system must support the project in order to achieve acceptance and use after implementation.

These three perspectives may have contradictory needs: (1) the funding agency is concerned about initial and ongoing costs; (2) the library staff may be concerned about bibliographical integrity, MARC formats, and authority control; and (3) the users will want immediate access (no down time), simplicity of use and comprehensive coverage. These are some simple examples of needs identified in the multiple perspective approach to the analysis of the impact of technology. From these examples it is easy to see the variety of requirements and perceptions of need from the various groups. The problem which arises once one begins this analysis is that the perspectives are often contradictory. The funding considerations come into direct conflict with the need for comprehensive coverage.

The biggest reason for this apparent contradictory dilemma is that we do not look at the whole of the situation—a common systems analysis problem. Most systems' problems arise because we fail to think in broad enough terms. We look at the subsystem without considering the context. Physicist Niels Bohr, in another context, viewed apparent contradictions as being complementary in nature:

In general philosophical perspective, it is significant that, as regards analysis and synthesis in other fields of knowledge, we are confronted with situations reminding us of the situation in quantum physics. Thus, the integrity of living organisms and the characteristics of conscious individuals and human cultures present features of wholeness, the account of which implies a typical complementary mode of description.<sup>2</sup>

The complementary nature of the three perspectives are a part of the whole systems approach to the analysis of the impact of technology.

Problems arise when the human factors are not considered. Michael Malinconico, writing in *Library Journal*, lists "the principal risks inherent in an attempt to introduce new technologies..." and "the factors which

influence the potential level of risk..."<sup>3</sup> but nowhere does he mention staff or user acceptance as a potential risk or factor to be considered in avoiding failure. The entire article is devoted to the planning process, budget overruns, time delays, system failures, and the failure of the project to deliver on anticipated benefits. This is only one of many examples available in the literature where there is an ideological subordination of people in the discussion of system planning and implementation.

We are in danger of a resurgence of the Luddites if we do not fully acknowledge the importance of people in the successful planning and implementation of our grandiose plans for automating the library world. "Technology has been made to serve a cult of the 'future' such that the urgencies of the present are conveniently ignored."<sup>4</sup> A recent issue of *Democracy* looks at technology's politics in which private capital is accused of "moving decisively to enlarge and to consolidate the social dominance it secured in the first..." Industrial Revolution. "As their extortionist tactics daily diminish the wealth of nations, they announce anew the optimistic promises of technological deliverance and salvation through science." Those of us involved in the automation of libraries have been optimistically promising technological deliverance from drudgery, and are perpetuating the myth of technology "as an autonomous thing, beyond politics and society, with a destiny of its own.... Technological determinism—the domination of the present by the future—have combined in our minds to annihilate the technological present. The loss of the concrete, the inevitable consequence of the subordination of people..." in the design and planning of automated systems "thus has resulted also in the loss of the present as the realm for assessments, decisions, and actions."<sup>5</sup> Noble further states that:

The purpose here is to acknowledge, endorse, and encourage...[the library staff's] response to technology in the present tense, not in order to abandon the future but to make it possible. In politics it is always essential to construct a compelling vision of the future and to work toward it, and this is especially true with regard to technology. But it is equally essential to be able to act effectively in the present, to defend existing forces against assault and to try to extend their reach. In the absence of a strategy for the present, these forces will be destroyed and without them all talk about the future becomes merely academic.<sup>6</sup>

Social historians have attempted to reconstruct the trauma of the first Industrial Revolution and to look with new eyes at the Luddites—the machine smashers. The Luddites (we are told in the history of the Industrial Revolution) were opposed to progress—i.e., did not want their skilled weaving jobs replaced by giant mechanical looms. The Luddites went about smashing the machines to save their jobs in an attempt to buy time for themselves and adjust to the new technology. The Luddites were

reacting to technological progress in the present tense. Traditional historical accounts have been inherited from:

those who opposed machinery breaking and who succeeded in removing the technology question from the point of production, from the workers themselves, from the present that was the first Industrial Revolution. In the place of that traumatic reality, they constructed technological myths about the power of the past and the promise of the future. And in the light of these myths the courageous Luddites were made to seem mistaken, pathetic, dangerous and insane.<sup>7</sup>

When I speak of a resurgence of the Luddites, stories come to mind of bibliographic sabotage by retrospective conversion staffs who entered bogus, sometimes obscene records into the MARC format and entered them into various systems. Without early involvement of the people affected by the technological changes in the planning process, we set ourselves up for failure. We are talking about more than minimal levels of competencies needed to perform functions; we are talking about attitudes, resistance to change and more.

When we involve in the planning process people to be affected by the technological change, frank discussions should take place regarding staff displacement. As administrators introducing new technologies into the library environment we are all too quick to promise that, "no jobs will be lost" as a result of automation. What we should be saying is that, "no positions will be lost." We must introduce the idea of staff displacement in light of new skills needed.

As the structure of the functions of reference, circulation, cataloging, and acquisitions changes with the implementation of automated systems, different skills are needed to perform in the new environment. Jobs change radically and, though there may be no reduction in staff, there certainly is displacement of staff. Staff who once worked somewhat autonomously checking in journals in a public service area may find the job moved into the technical services area because it is now possible to access the check-in records from multiple locations via computer terminals.

We were formerly bound by the desire to give public access to a single manual file of check-in records. The staff member who was in charge of check-in and public assistance in use of the check-in file, now finds the job totally split. When we look at that job we are not talking about FTEs (full-time employees), we are talking about human beings who have been performing specific functions. No matter where the individual goes (to public services to give reference service in periodicals or to technical services to manage the check-in of records on the automated system), there has certainly been staff displacement. The old job no longer exists.

As professionals we must recognize the importance of addressing this issue. We must look at the proposed system and talk about the new skills

needed to staff an automated circulation department. We must not assume that the individual who has been typing out fine notices by the thousands is going to adapt readily as a terminal operator. Jobs are often lost in the more routine areas of circulation to be replaced by higher skill requirement jobs. By the same token we have to analyze the impact upon the users who depended upon the public service function of the check-in clerk who actually handles the physical piece. That handling is all behind the scenes with shelvees transporting the items to the periodicals reading room. There may be an apparent loss of personal service if the planning hasn't included some attention to the users of the service.

It is now time to return to my initial thesis and develop some directions for successfully dealing with the technological present. If you recall I said the root of the problem is in "the political and ideological subordination of people" in the work environment and at the point of service. We must begin to involve our three constituencies at the point we begin to plan for new technology. One way of doing this is by establishing a team from the university administration, library employees and users (faculty and students). A clear set of goals and objectives can serve as a framework for the development of a comprehensive system or a single application. It is not important that all contingencies are addressed, but it is important to involve those to be affected by the changes.

A successful method has been to use this planning group to develop a rough outline of the areas to be addressed by technology and present a functional list of requirements. This list may be turned over to someone trained in writing functional specifications and who is knowledgeable about what is available in the marketplace. The resulting document is then presented to the planning group for review, and only after its approval are you ready to prepare a formal request for proposal (RFP).

This may seem like a time-consuming process, but it is well worth the effort. Since initiating the development of an RFP for a circulation system, I've been conducting RFP update sessions for interested staff (out of an FTE staff of sixty, I have had as many as thirty people attend these sessions). The first session covered basic automation, what it does, why we need it, and what it will mean in our library. The second session was a discussion of our RFP for a circulation system; basically, what are we asking for in a system. The third session was held once the RFP was sent to vendors, and it covered the next steps in the process of selection. We have now assembled an evaluation team consisting of university administrators, data processing specialists, library staff, and faculty. When a decision is reached, I will have another session with the staff discussing the selection process and answering questions about our choice.

This process has grown out of a firm philosophical commitment to the library staff and users. Design principles are important, but they must

address more than file structures and screen displays. It is the successful combination of a good technological design with informed and interested library constituencies which will result in a model application of technology.

Another point at which subordination of library staff can spell failure is the implementation of a system. One suggestion is to establish an implementation quality control circle (QC) involving all those affected by the new system or subsystem. These groups should be voluntary and function statements should clarify the purpose of each group. QC skills should be acquired by the person facilitating the group and the group members should learn how they are to operate. A QC provides the mechanism for involvement of staff in solving problems at the very beginning and avoids the pitfalls of imposing technology on the workers. The worker "owns" the system at the outset and is less likely to sabotage. There is also peer pressure to have a smooth functioning system.

Thus far I have attempted to look at philosophical issues and practical solutions to technological problems posed for the multiple constituencies of the library. So what does all this have to do with professional competencies? Technological change has always produced more jobs than have been lost. They are often different jobs, in different places, requiring different skills.

I shall end my discussion by looking at a set of conditions which must be met if we, as information professionals, are to meet the demands of the information needs of society. In meeting those needs I hope we will be constantly aware of the technological present and avoid a fatalistic and futuristic confusion about technological development. Successful progress in library technology calls for a set of conditions to be met which are directly related to competencies:<sup>8</sup>

1. the library field must advance the technological state-of-the-art;
2. the professional work force must not become outdated in rapidly developing technological fields;
3. careers in library and information science must attract and retain intellectually able persons;
4. the paraprofessional work force must be trained to respond rapidly to the new tasks that the use of high technology products and services require;
5. the library user community, including the funding agencies, must understand the importance of investing adequately in appropriate technology to maintain a high level of information services; and
6. librarians must understand and contribute to policy issues relating to information.

Discussing these in more depth, first, universities must support research and development through the maintenance of strong faculties and state-of-the-art research facilities. Research must include the sociological and philosophical aspects of information technology.

Second, the problem of maintaining the major part of the professional work force at the state-of-the-art in rapidly changing technological areas is unsolved. While continuing education activities such as this are commendable, they do not provide an adequate solution to technological obsolescence of most library training. Major efforts by library schools and libraries will be needed to provide practicing librarians the skills needed to broaden and deepen librarians' knowledge bases throughout their careers.

Third, librarians and library schools must recruit talented individuals into the field. There must be incentives to retain the best and the brightest. We must offer challenge and opportunities for growth by increasing our visibility and image within society. We need technological competence and a philosophical understanding of the technology.

Fourth, paraprofessionals are an important part of the library work force. An adequate background in basic analytical skills will help individuals meet the demands involved in dealing with today's technology. Additionally, it is important for library administrations to invest the time and effort in training staff for the skills needed to perform complex operations.

Fifth, user communities must understand the importance of developing increased technological capability by setting that as a high priority with funding agencies. Librarians must become astute politicians so as not to set up a competitive environment for funding and technical resources. We must be able to demonstrate our ability to provide services to our entire population base—the development of library technology must be a common good. This is done by involving people, not just designing good systems.

Sixth, as librarians we must recognize the importance of the broader information community. We must become involved in the political process to ensure (1) that privacy issues are addressed, (2) that policy issues regarding the privatization of public information are made with the interest of public access assured, and (3) that a society of the information elite does not develop where only those who can pay for information get it.

It is an exciting future we have before us. We would be wise to think beyond our traditional roles to the broader contributions to the information community. We have skills which are needed, but we have been so tradition bound that we have looked at solutions too narrowly. The skills of traditional librarians combined with increased analytical skills will prepare us for important roles in the information society.

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