

## INFORMATION EXCHANGE AND RURAL LIBRARIES<sup>1</sup>

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Libraries in rural areas are affected by their environment. This fact is especially significant today because there are both enduring constants and rapid changes in small towns and open country. This discussion examines first the definition of the rural library's place in the contemporary American information exchange system. Then, impacts of rurality and information are described.

### An Information System

The techniques of systems analysis are helpful in describing the place of a rural library in its environment. In its simplest form, an information system has to include only a source and user (Figure 1).



Figure 1. Simple Information System

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<sup>1</sup>Adapted from an address given at a workshop entitled, "Changes in the Rural Community: Its Impact on Libraries and the Humanities," Clarion, Pennsylvania, November 20, 1981.

The communication between these two parts is represented by a solid, double-headed arrow. The user initiates a request, the source responds, the user seeks additional information and so on. Thus, the word "messages" above the line reminds the reader that information moves back and forth between the source and user.

The degree of simplicity is possible only by making many unstated assumptions about each of the three parts. The three-part model does, nevertheless, remind us that an effective and vital system must have messages moving in both directions.

A more complex and recognizable system still accounts for the user and source. In addition, intermediate subsystems appear between the user and source.

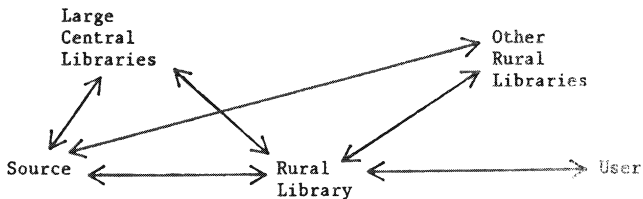


Figure 2. Complex Information System

In this case, requests for information initiated by the user are directed to the rural library - the movement of information represented as in Figure 1 by the double-headed arrow. The information may come directly to the rural library from the source, e.g., USGPO, private publishers, A-V producers. Alternatively, this system recognizes the role played by other libraries of a

similar size and those serving as central depositories. Thus, messages can be mediated and may move through one or more providers before reaching the user.

Finally, the rural library is embedded in a community-based information system .

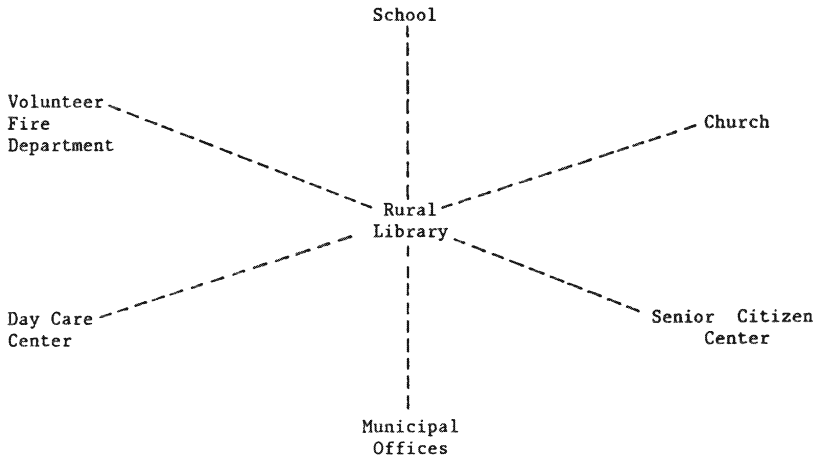


Figure 3. Community Information System.

In Figure 3 the message routes among subsystems are shown as dashed lines. The dashed line symbolizes a potential for information exchange. Whether or not these are realized depends on many factors both hindering and facilitating collaborative efforts (see Appendix A). Where these ties from a rural library do extend to other community subsystems, the potential for meeting user demands are increased. Undocumented at this time are the exact improvements to be attained through each kind of intracommunity linkage.

In summary, the rural library is located between the user and source in an information system. The library's potential for facilitating information exchange may depend not only on its internal organization and resources but also its ability to reach out to other subsystems in its environment. Further, as the number of subsystems, i.e., libraries, in the complex system increases, the need for ways to coordinate activities increases. In an environment that places a high value on being a part of the system, a noncooperator or isolate is likely to fall farther and farther behind in its ability to meet user needs.

#### Impacts of Rurality on the System

Earlier reference was made to enduring constants. Certain characteristics of small towns and open country are constants; these are space and population density. By definition these places are occupied by low absolute numbers of people separated from the library by considerable physical space. And, as Bachrach points out, these rural areas are not restricted to non-metropolitan counties but occur frequently in Pennsylvania's metropolitan counties as well (1981:3-5). The physical barrier of space is relevant not only in the user/library relationship but in library-to-library relations as well. The costs of physical access to facilities in a community center, already high in rural areas, have increased abruptly in the last decade with rising energy costs. These costs tend to separate the system's parts, fostering independent rather than interdependent behavior.

Further, with a relatively low number of users, each library is likely to be able to mount only a limited claim to community resources in absolute dollars. Thus, as part of a small town or community system, the

rural library is more likely to have to turn to other parts of the information exchange system to meet user demands than would a larger, more centrally located library.

#### Impacts of Information Technology on the System

Although space does not permit a comprehensive review of changes in information technology, attention may be given to three distinct areas: 1) telephones, 2) microforms, and 3) computers.

#### Telephones

In contrast to thirty years ago, the number of residential subscribers of telephone service has doubled. While they do not separate urban and rural areas, statistical sources indicate that a proportion in excess of ninety-five percent of homes have access to telephone service (1950, 1972, 1977).

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U.S. Statistical Abstract, Table 545

1950 "Telephones in Use, By States," p. 461. Washington, D.C.: USGPO.

U.S. Statistical Abstract, Table 797

1972 "Telephones in Use, By States," p. 494. Washington, D.C.: USGPO.

Pennsylvania Abstract, Table 260

1977 "Summary Statistics for Electric, Gas, Telephone, and Water Utilities in Pennsylvania, 1961-1975," p. 364. Harrisburg, Pennsylvania: Pennsylvania Department of Commerce.

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Research activities in rural sociology at Penn State indicate that access to telephone service is nearly universal in rural areas, with the exception of selected ethnic enclaves.

Further, any of us either living or working in rural areas know how much telephone reliability has changed, especially with the replacement of individual wires with cables for rural service in the last thirty years. Dependable telephone service is now the rule rather than the exception.

Why talk about telephones? They allow a user to reach quickly and inexpensively across the system to a nearby information source: the library. Perhaps special recognition needs to be given to the role of telephone reference service in these situations. It may be through this service we are able to reach across the space barriers in small towns and open country. In addition, telephone linkages are an indispensable means of quickly consulting with other subsystems as shown in Figure 2. Reliable and inexpensive means of communication are essential to establishing and maintaining strong systemic ties in a complex information system.

### Microforms

Stimulated by developments in private industry, microforms in general, and especially microfiche, emerged in the 1970's as inexpensive means of information exchange. With the capability of reducing ninety pages of print to a single fiche, this technology has not only reduced cost of reproduction but also of transportation and storage. Going back to the complex information exchange system (Figure 2), it is easy to see the relative advantage of this microform over hard-copy text. The space between subsystems can

be overcome inexpensively by mailing fiche (even first class) when the time and expense of transferring hard copy could be prohibitive.

In addition, with the storage problems that are especially acute in small libraries, microforms represent a welcome relief from the paper blizzard of new hard-copy materials. The advent of the portable fiche readers encourages users to make broader use of fiche, also. Thus, this technology has helped to overcome barriers of space and low user numbers.

Microfiche is much less expensive to reproduce than hard copy. When one compares the cost of duplicating one fiche (ten cents) with ninety pages of hard copy (five cents per page = \$4.50), it is easy to see why reference materials or those volumes having low circulation might be prime candidates for a small library to obtain in microform.

### Computers

What have computers to offer to a rural-oriented information exchange system, and, especially to a small town library? For these libraries the single most important feature of computers in the 1980's is miniaturization. The emergence of the silicon chip and subsequent development associated with it have fostered a movement to microcomputers with most exciting capabilities.

Currently being tested in Minnesota is an information system that depends on personal computers, e.g., Apple, Radio Shack, Xerox, IBM, and lessons recorded on computer disks (technically, single-sided, single-density floppy disks). The users borrow the disks from the lending library, load them in their own microcomputers, and proceed with computer-assisted instruction. These lessons are currently limited to agricultural topics, such as, animal nutrition, soils, and plant propagation. The durability and low expense of

these disks is a key to this system. Further, all of the users have the same type of microcomputer so that the programs recorded in the disks are compatible with their machines.

Another application of microcomputers and lessons is being made in northern New England counties. Users in this instance are obliged to go to a central location to use one or more microcomputers housed in churches, fire halls, libraries, or any other available place. Users select the lesson appropriate to their need; the current limitation is the number of lessons available. This example is, however, illustrative of how microcomputers used in a stand-alone mode could be used in small libraries to assist users in acquiring desired information.

Any computer capable of supporting instruction is also capable of performing a variety of other tasks as well. The machines in this class usually have 48,000 bytes of random access memory (48K) with a unit to read/write a single disk and cost in the range of \$3,000 to \$4,000. Current estimates of improvements expected by 1985 are that memory will double (96K), increases in operation speeds will cut to one-half the time to process information, and costs will decrease by twenty to thirty percent.

Such machines when linked with acoustical couplers can be used as remote terminals for large central computers. The terminal-type activities for which a small library might want to use a microcomputer include:

- 1) Searching large bibliographic files prior to initiating an inter-library loan or referral;
- 2) Searching a data base directly to answer a user inquiry, e.g., census figures on population, housing, manufacturing, climatological data;



- 3) Copying information from the central computer's files on disk locally for recurring access, e.g., directory of state government offices, paperback books in print.

Looking into the future when a substantial proportion of homes will have microcomputers, we might ask about the library's role. Will users bypass the local, rural library and directly access by telephone the central library? While this will be technically possible, it probably will not be economically attractive because of long-distance telephone charges. The locally accessible facility will continue to be an important point of initial access to the information system even in a computer-based society.

#### Challenges for a Better System

The existing rural-oriented information exchange system must seek to overcome the two constant barriers of rurality, space and smallness, in a rapidly changing technological environment. Libraries that ignore the implications of telephone, microforms, and microcomputers for their programs will become increasingly isolated from their users and the community as a whole. Those local libraries that innovatively adapt their programming to this new environment will be most likely to forge new and stronger user relationships.

#### Reference

Bachrach, L.L. Human Services in Rural Areas: An Analytical Review. Project Share Human Services Monograph Series No. 22, July 1981.

## Appendix A

### Inter-Agency Collaboration Within Communities

Frequently, single organizations working alone cannot solve today's complex problems, even if they have sufficient resources. For example, what single organization can solve our health problems, bring needed employment to communities, solve the problems of the elderly, or provide for the needs of young people?

Obviously, no single organization can help us do all the things that we need to do to make our communities better. No local organization is likely to obtain enough money and people to do all the necessary planning and be able to handle all community programs.

More and more, community organizations need to join together to carry out community projects. Many local organizations are cooperating, and coordinating councils are coming into use. In addition, many county and area planning organizations have been developed. Councils of government are becoming more numerous.

Getting local organizations with limited budgets and resources to work together does have advantages. In addition, many people think communities are healthier when more people and organizations are involved. But the question is: Do we know how to work with each other and how to coordinate?

Table 1, "Administrative linkages to promote coordination," describes the possible ways in which a library may reach out to other community organizations to share resources. Additional information about this process is available in Mulford and Klomlan.

Table 1. Administrative linkages to promote coordination.

Linkages	Examples
1. Fiscal	Organizations decide jointly how their funds, or funds to be made available by others, will be used.
a. Joint budgeting	
b. Joint funding	Several organizations agree to jointly fund a project.
c. Fund transfer	One organization transfers its funds to another which uses them in a jointly approved program.
d. Purchase of services	One organization contracts to provide services that are paid for by another organization.
2. Personnel Practices	
a. Consolidated personnel administration	The same administrators supervise the activities and personnel in two or more units formerly supervised by others.
b. Joint use of staff	One staff provides services for more than one organization.
c. Staff transfers	Staff from one organization moves to another to allow them to work on a project.
d. Staff out-stationing	Organizations place some of their staff closer to the client or where the coordinated work is to be done.
e. Co-location	Staffs from two or more organizations are located in the same facilities.
3. Planning and Programming	
a. Joint development of policies	Administrators from several organizations jointly agree on policies for clients.
b. Joint planning	Administrators from several organizations jointly select programs and services.
c. Joint programming	Administrators jointly develop program content and delivery of program content to clients.

Linkages	Examples
d. Information-sharing	Informal discussions, exchanges of newsletters, open houses, etc. held to provide information to other organizations.
e. Joint evaluation	Personnel from several organizations work together to jointly evaluate services provided.
4. Administrative Support Services	
a. Record-keeping	Relevant records on clients and services are maintained by staff in one location and made available to participating organizations.
b. Grants-management	Activities funded through grants and records of fund allocations supervised and maintained by staff in one location for all the participating organizations.
c. Central support	Services needed by all of the organizations such as typing, printing and accounting are provided by some staff members for all the organizations. Each organization may contribute funds to pay for the services provided.

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Source: Charles L. Mulford and Gerald E. Klonglan, Creating Coordination Among Organizations: An Orientation and Planning Guide, North Central Regional Extension Publication 80. Publication can be obtained from Publications Distribution, Printing and Publications Building, Iowa State University, Ames, Iowa 50011 (\$.65 each - 10 percent discount on 100).