ED 354 904   IR 054 488

AUTHOR   Hammond, Carol, Ed.
TITLE   Mapping the Future: Contributed Papers Presented at
                the ASLA-AEMA 1992 Joint Conference (Phoenix,
                Arizona, October 14-17, 1992).
INSTITUTION   Arizona Educational Media Association.; Arizona State
                Library Association, Phoenix.
PUB DATE   Oct 92
NOTE   42p.
PUB TYPE   Collected Works - Conference Proceedings (021) --
                Reports - Evaluative/Feasibility (142) --
                Tests/Evaluation Instruments (160)

EDRS PRICE   MF01/PC02 Plus Postage.
DESCRIPTORS   College Libraries; Conference Papers; *Depository
                Libraries; Educational Trends; Evaluation Methods;
                Federal Government; Futures (of Society); Higher
                Education; Information Networks; Library
                Associations; Library Automation; *Library
                Instruction; *Maps; Nonprint Media; Online Systems;
                Program Evaluation; Questionnaires; Technological
                Advancement; Telecommunications; Trend Analysis
IDENTIFIERS   Government Printing Office; *Information Policy;
                *Participatory Evaluation

ABSTRACT
                Three papers contributed to the joint conference of
the Arizona State Library Association (ASLA) and the Arizona
Educational Media Association (AEMA) are presented. "Participatory
Evaluation: Alternatives for Library Instruction Evaluation" (Dennis
Isbell and Lisa Kammerlocher) describes the experimental library
instruction evaluation program of Arizona State University West
(Phoenix), a team effort that emphasized improvement over personnel
decisions, and encouraged experimentation. Four appendixes provide
sample evaluation forms. "Advances in Map Librarianship: Automation
Now and Into the Future" (Christine Kollen and Charlene Baldwin)
describes current and future trends in map automation, including the
dilemma of the library versus the laboratory, bibliographic access to
computerized data sets, and experiences in reaching out to others
involved in map automation. Eight figures illustrate the discussion.
"Access and Delivery of Federal Electronic Information in the 1990s:
Futures for the Depository Library Community" (Donna R.
Larson-Bennett) reviews the strategic plan of the Government Printing
Office regarding some of the problems of the electronic age and
document delivery, and asserts that a clear and comprehensive
information policy statement from Congress is needed so that
information policy of the future can take a definite direction. Each
paper provides references. (SLD)

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MAPPING the FUTURE
ASLA-AEMA 1992 JOINT CONFERENCE

OCTOBER 14-17, 1992 ● PHOENIX CIVIC PLAZA ● PHOENIX, ARIZONA

Contributed Papers

presented at the

ASLA-AEMA 1992 Joint Conference

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College and Universities Libraries Division

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MAPPING the FUTURE

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Panel of Jurors

The following librarians served as evaluators of the proposals for contributed papers:

Rosanna Miller, Chair
Head, Map Collection
Arizona State University Library

Sandra Bray
Order Librarian
Arizona State University Library

Jeanne Pfander
Science Reference Librarian
University of Arizona Library

Carol Hammond
Head of Research and Information Access Services
Arizona State University West Library

Editor

Carol Hammond
Arizona State University West

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PARTICIPATORY EVALUATION:
ALTERNATIVES FOR LIBRARY INSTRUCTION EVALUATION

DENNIS ISBELL
Research Support Services Librarian
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and

LISA KAMMERLOCHER
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Arizona State University West
Phoenix, Arizona

*In an effort to improve instruction and explore alternative methods of delivering and
evaluating instruction, the librarians at Arizona State University West initiated an
experimental library instruction evaluation program. The program devised was a team effort
that emphasized improvement rather than personnel decisions, and encouraged
experimentation. The results of the program have led to a new awareness of our instruction,
which has helped to refocus our efforts, and a willingness to experiment with instructional
methods such as active learning techniques and team teaching. The paper outlines the
program devised, some examples of evaluation techniques used, and preliminary results of
the program.*

I. INTRODUCTION

The recent emphasis on undergraduate teaching in higher education has reached
probably every college and university campus in the nation, and ASU West is no exception.
In response to increased interest in the evaluation of teaching and the assessment of student
learning, the librarians at ASU West initiated an experimental evaluation program in the
Spring of 1992 academic year.

Evaluation of one's teaching, even among librarians (or especially so, since for many
of us teaching is just one part of our jobs), is often viewed as threatening. To reduce that
threat, the librarians devised a team approach to evaluation that emphasized improvement,
not personnel decisions, and individual control. It is experimental in that each librarian needs
to feel comfortable with the process before it is formalized, and in that it is flexible enough to
fit each librarian's style and needs, a must in evaluation for improvement.

1

As a group, the librarians decided to start with an evaluation program to first see how well we are doing as individual instructors. We reasoned that from there we could start identifying ways to improve ourselves as teachers, and to give us new ideas about how to change our instruction to make it more relevant and active. Finally, we wanted to use our evaluation program to help us identify appropriate methods for future evaluation of student outcomes, another campus-wide initiative.

II. GUIDELINES

A number of decisions about the evaluation program were decided early and guided our efforts (Appendix A):

A. Group Process

It is important that the librarians involved in instruction decide as a group what the evaluation process should be, and any program must be a team effort. A group effort ensures individual investment in the program, the proper focus for the evaluations, and the sharing of findings and insights.

B. Ongoing Commitment to the Process

The commitment to evaluation and improvement must be continuous for it to have any lasting effect.

C. Formative Focus

The primary function of any evaluation program must be formative rather than summative. In other words, the focus must be on improvement of ourselves as teachers and on our instruction program. Evaluation for personnel decisions (summative evaluations) is secondary because formative evaluation needs to be nonjudgmental and supportive in order to assure constructive cooperation.

This point merits further elaboration. Many researchers stress the incompatibility of summative and formative evaluations, and that they must be handled separately (Weimer 1990; Braskamp 1984). When starting a new evaluation program, it is essential that all of the participants be comfortable with the process, and it is hard to be comfortable with a new process that has the potential to effect your promotion or tenure at the institution. Evaluation for improvement requires an openness to self-examination, a freedom to try out new techniques and approaches, a focus on specific individual behaviors, and reassurance that the evaluation will not be used judgmentally. All of these requirements run counter to the requirements necessary for evaluation for summative purposes. The threat of evaluation for personnel decisions does not encourage an open examination of one's performance or an experimental environment.

D. Role of Evaluation Measures

1. Experimentation with both evaluation and instruction should be encouraged; system of evaluation should be flexible to address individual needs for improvement.

2.   Evaluation instruments must contribute to improvement by providing direction and suggestions for improvement.

If expectations for improvement are to be realized, evaluation for improvement must be directive and focus on specific and changeable behaviors. It is difficult to improve one's teaching if one has nothing specific on which to focus. Evaluation for personnel decisions focuses on more global judgments and scales that can be easily tabulated. Therefore, the information from summative evaluations are not as easily applied to improvements in teaching (Weimer, 1990).

E. Immediacy

An evaluation program should start modestly and offer something of immediate value and use to increase individual commitment and make it a meaningful effort.

F. Multiple Evaluation Sources

Evaluation measures must come from a variety of sources, e.g. student feedback, faculty feedback, observation by colleagues and self evaluation.

It is important to collect feedback from a number of sources to capture the act of teaching in its totality. Some sources are more appropriate for the evaluation of certain aspects of teaching, e.g., colleagues are better able to evaluate the knowledge needed to present a library skill or concept to students (Seldin, 1984).

III. THE PROGRAM

To ease into the process, during the first semester of the evaluation program the librarians decided to approach the task on three fronts: 1) a standardized unit level evaluation all the librarians would share in that solicited feedback from professors whose classes instruction was provided for, 2) individually devised student evaluations, and 3) informal, reciprocal colleague observations. None of these were used for summative evaluations. Information came back to the librarians through a variety of mechanisms for their own individual use.

A. Unit Level Faculty Evaluations

Each librarian identified one or more courses that he or she provided instruction for to the instruction supervisor, who in turn sent a brief evaluation form to the faculty member teaching the course. The evaluation covered the quality of instruction, the relevance of the instruction to the course assignment, and the impact of the instruction on the work done by students. The evaluation request was made a couple of weeks before the end of the semester.

The evaluations were returned to the instruction supervisor and were never seen by the librarians being evaluated, nor were the evaluations put into any librarian's permanent record. Feedback was summarized and given to the librarians by the instruction supervisor, again for improvement purposes (Appendix B).

B. Individually D₁ ₁sed Student Evaluations

ASU West offers only upper division undergraduate and selected graduate classes, so all of the library instruction is subject and course based, and each librarian involved in instruction teaches only those classes in his or her area of subject specialty. As a result, instruction has been done individually and the librarians are used to working as independent teachers, tailoring their instruction to their faculty's needs.

To maintain our independent operation, each librarian individually devised a plan of evaluation for each class taught. Usually it was a short written reaction from students at the end of the class session to be used for immediate feedback on content or presentation. This was used by each librarian personally, but sharing with the group was encouraged.

Again individually, each librarian chose at least one class to test or survey more formally near the end of the semester well after the library instruction session. It could be either a brief questionnaire or test. This evaluation was especially useful for trying out techniques for measuring student learning outcomes. The techniques used and the findings would be reported to the group.

The evaluation technique most used by individual librarians in classrooms was based on a technique mentioned in the Harvard Assessment Seminars called the one-minute paper (Wolff 1991) that is simple to use and provides immediate feedback. At the end of a class session, students were asked to respond to one or two short questions, usually asking 1) what is the most important thing you learned today? and 2) what do you wish was covered but wasn't?

Other techniques used were simple surveys and mixes of surveys and questions, especially for the end of the semester evaluations (Appendix C).

C. Informal, Reciprocal Colleague Observations

Each librarian was assigned to observe a colleague teach a class and provide feedback on content, delivery, materials, etc. A form was provided to guide the observations and to direct the focus of the observations to specific behavior and content. Also, the instruction supervisor observed every librarian teach a class at least once and provided feedback (Appendix D).

IV. RESULTS

The results of our experimental evaluation program were many and generally positive. But they also include a realization of where we fell short and need to improve our efforts to make the evaluation program effective and a continuous part of our instruction. Since the evaluations were for the most part informal, individually devised and not formally tabulated (again, our emphasis is on improvement), our conclusions were drawn from group discussion and sharing with our colleagues what we experienced with our individual evaluation efforts. Even though the evaluations were conducted individually, there was a surprising amount of agreement about the benefits and shortcomings of the program.

A. Benefits

1. Focus on Goals

All of the librarians found that the process encouraged a more focused and goal-oriented approach to each class session. This started very early in our discussions of the evaluation program. Simply talking about evaluation of instruction leads to talk about what one wants to evaluate, or one's goals for each class. Each librarian reported being more conscious of what they were trying to teach, and it usually resulted in more focus on important concepts or larger skills, such as the use of Boolean logic when using CD-ROM indexes, the importance of the vocabulary used in searching, and the evaluation of sources. The trend was away from presenting endless detail. The belief is that a more focused effort is a more effective effort.

At the departmental level, the instruction request form was changed to reflect an increased attention on goals. The form now has a section for listing three goals for each instruction session that is filled in consultation with the faculty member requesting the instruction. Also, as a group the department has started talking about library-wide goals for instruction. In addition, some librarians started incorporating a statement of instructional goals to the students at the beginning of class sessions, providing focal points for the students to look for during instruction (Appendix E).

2. Increased Awareness

All of the librarians evidenced and reported a greater awareness of themselves as teachers and of their instruction. That alone is valuable in a program envisioned as a continuing process. Each librarian now has a clearer picture of what he or she is doing in the classroom and the directions they want to go in the future. Many became aware of ways to alter their styles or presentation of material to make their instruction more effective. Improvement starts when a teacher can focus on specific individual behaviors that can be changed, and many librarians began with simple behaviors such as increasing one's pace of speech or using more visuals.

One librarian reported trying to make even the students he was teaching more aware of the library presentation by sharing student comments from previous classes. The librarians also became more aware of what the students were learning and what they thought was important in library instruction. The one-minute papers were especially useful for ensuring that students had gotten the main point of a presentation, and for making the librarians more goal oriented. Many librarians reported making their instruction more assignment specific and less global.

3. Verification of Efforts

In one way the evaluation project offered reassurance to the librarians, in that the evaluations often told them that they were on the right track already. The evaluations often verified the informal feedback from students and faculty that what they are doing is appreciated and generally viewed with approval. Students and faculty tend to view library instruction as useful and the librarians as helpful and friendly. While this wasn't telling us anything new, it did make us feel more secure at a time when we were questioning our efforts and experimenting with ways to make it better.

4. Marketing

The potential uses of evaluation results for marketing was an unanticipated benefit of the project. Some librarians collated the comments from the students and sent a report to the professor. Student comments addressing the time alloted for library instruction or the need for more exposure to the library have been useful in convincing faculty of the value of instruction. This type of documentation can also lead to more detailed discussions of information literacy in the curriculum.

5. Spirit of Experimentation

The evaluation program seemed to foster a willingness to experiment with all aspects of evaluation and instruction. During the course of the semester each librarian tried different types of evaluation forms and techniques and, as the semester wore on, the forms and techniques were often refined. Questions asked on evaluations became more pointed and focused, for example. Each librarian became a little bit better at constructing evaluation forms and these were often shared among colleagues.

There was also experimentation with classroom presentations in attempts to try new techniques to more effectively reach instructional goals. Many librarians reported using more active learning techniques in classes, such as having students examine reference sources in pairs and then reporting their findings to the rest of the class. This was done in support of the goal to foster more critical thinking about sources and to get students more involved in the instruction. Every librarian involved in instruction also experimented with team-teaching a class with another librarian, and this approach was especially enlightening and enjoyable.

B. Shortcomings and Suggestions for Improvement

Although the benefits were many, there were areas where we need to make improvements in the program if it is to continue.

1. The "Halo Effect"

One common complaint shared by all of the librarians involved was that often the evaluations were too innocuously approving to be of much use for suggesting ways to improve. Students, faculty, and even colleagues often commented on the evaluation forms that everything was fine and they could offer no suggestions for change. Again, improvement is possible only when one has a specific behavior on which to work.

Ways that the "halo effect" on student and faculty evaluation forms can be minimized include writing more focused and specific questions on evaluation forms. The librarian offering the instruction needs to identify one or two important aspects of his or her instruction and ask specific, pointed questions about those aspects. The librarian could also ask faculty and even students to be aware of certain parts of the presentation in advance, and to honestly evaluate them.

Among the librarians themselves as colleague observers, the "halo effect" can be minimized only by increasing the amount of trust within the group. It needs to be constantly kept in mind that the evaluations are developmental and that suggestions for improvement do not imply negative criticism or judgment. The librarians need to be more honest with each

other without being threatened. Feedback needs to be more directive without focusing on personality.

2. Verification of What We Already Know

Although verification of efforts has been mentioned already as a benefit, the evaluations also reinforced and validated some negative things we already knew.

One of the negative things the evaluations told us was the lack of reliable facilities for teaching electronic systems to large groups of students. Although the library has access to a computerized classroom that can be hooked into the library's online catalog and that should allow for individual hands-on experience, it has seldom worked as promised. As of yet, it cannot handle any of our CD-ROM products either (we do have a CD-ROM projection system for classroom demonstrations, but even that has been known to fail). Student evaluations often mentioned the need for hands-on instruction with the electronic systems, and having reliable facilities would greatly enhance our ability to offer more active and relevant instruction.

Another negative is the lack of time the librarians are given for classroom instruction by faculty. It is the old complaint of not having enough time to cover everything. As a result, library instruction is often rushed and full of details that are forgotten as soon as the librarian finishes his or her presentation. This may be harder to solve than the problem of reliable facilities (since one is dealing with people, not technology), but one librarian reported having some success by sharing student comments about the amount of information to be absorbed in a library instruction session with the faculty member. That faculty member has agreed to allot more time for library instruction.

3. Lack of Timely Follow-up

The most serious shortcoming has been the lack of timely follow-up. The evaluation program started in the Spring Semester of 1992, but the librarians involved did not meet together to discuss what they did with their evaluations and what they discovered from them until the Fall Semester of 1992. While this may be understandable because of summer vacations and the usual busy pace in an academic library, it does not help to instill an ongoing commitment to the program or maintain a team approach. The enthusiasm generated by the experimentation with evaluation techniques and classroom instruction needs to be shared in a more timely manner to keep that enthusiasm up and efforts to improve moving forward.

V. CONCLUSION

In conclusion, although there were shortcomings, all of the librarians involved in the evaluation program thought it was worthwhile and should be continued. For many of the librarians it has helped to re-energize their instruction and start them thinking about it in more innovative ways, with an eye toward improvement. And despite the lack of timely follow-up, it has fostered a constructive dialogue within the department about library instruction and brought us closer to a team effort to define our overall goals for instruction.

We would like to emphasize that for the purpose of improvement, it is important to separate the evaluation program from the personnel process. Given academic libraries' stress on performance evaluation for continuing appointment decisions, etc., the separation may be difficult to maintain. Evaluation for personnel decisions (summative evaluation) do not

encourage experimentation and freshness. Instead, it encourages caution and playing it safe. To encourage improvement and continued development of librarians as teachers (formative evaluation) and the instruction program itself, the evaluation program must foster a sense of trust and be as non-threatening as possible. It must also be flexible enough to meet individual improvement needs, hence it must allow for individual decisions on what is to be evaluated and how.

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APPENDIX A

GUIDELINES

A. GROUP PROCESS

Involving all instructors promotes individual investment and a
team approach.

B. ONGOING COMMITMENT

A continuous commitment to evaluation and improvement must
be established early in the process.

C. FORMATIVE FOCUS

Evaluation needs to be non-judgmental and supportive in order to
assure constructive cooperation.

D. ROLE OF EVALUATION MEASURES

Define clearly how the evaluation measures are going to be used
while remaining flexible to individual needs.

E. IMMEDIACY

The evaluation process should be of immediate value to
participants in order to increase commitment.

F. MULTIPLE EVALUATION SOURCES

Capture the act of teaching in its totality by collecting feedback
from students, faculty, colleagues, etc.

APPENDIX B

Library Instruction/Faculty Questionnaire

Faculty_____ Class_____

Librarian_____ # of Students_____ Date_____

1.   Presentation Skills: organization of subject/lecture, ability to present material, speaking skills, establishing rapport & maintaining attention of students.

      Needs Improvement 1 2 3 4 5 6 7 8 9 10 Excellent

2.   Content of the library instruction session: appropriate for class or assignment, provided a strategy for approaching research project.

      Needs Improvement 1 2 3 4 5 6 7 8 9 10 Excellent

3.   What were the strengths of the session? What did you like best?

4.   What changes, improvements, additions or deletions would you suggest for future sessions?

5.   Would you use this service again?   yes   no

6.   Any additional comments?

10

APPENDIX C

SAMPLE EVALUATIONS

HARVARD TYPE ASSESSMENT

EXAMPLE #1:   IMMEDIATE RESPONSE

What is the most important or useful thing you learned in this library session?

INDIVIDUALLY DEVISED SURVEYS & MEASURES

EXAMPLE #2:   IMMEDIATE RESPONSE

LIBRARY INSTRUCTION EVALUATION FOR COM 308, SPRING 1992

You can help us provide better library instruction to students at ASU Wes. by honestly evaluating our instruction efforts. Please take a few moments to answer the following questions:

1.   What was the most important thing you learned from the librarian's presentation?

2.   What would you like to have covered that wasn't?

3.   Was the presentation useful?

APPENDIX C (CONT'D.)

EXAMPLE #3:   POST ASSIGNMENT RESPONSE

STUDENT EVALUATION OF LIBRARY SESSION
Spring 1992

Professor: _____Course:
_____

1.   Did the resources and strategies presented in the library session assist you
       in completing your assignment(s)?

               not at all 1   2   3   4   5   to a large extent

2.   As you researched your topic, what from the library session was most
       helpful?

3.   Is there anything that could be added to the library session to prepare you
       better for completing the assignment in this class?

EXAMPLE #4:   PRE/POST TEST

_____

APPENDIX C (CONT'D.)

LIBRARY RESEARCH PRE/POST TEST
AMS 341--SPRING 1992
ASU West   .

NAME:_____

ASU LIBRARIES CATALOG/DOCUMENT DELIVERY
1. To do a subject search in the ASU Libraries' Catalog, what command would you use?

2. To what libraries do you have access to through the ASU Libraries' Catalog?

3. If you are unsure about what subject terms to use when looking for books in the ASU Libraries' Catalog, what reference source can you consult?

4. What does "Other Entries" mean on a book record in the ASU Libraries' Catalog?

5. If you wanted a book listed in the ASU Libraries' Catalog that was in the Hayden Library at Tempe, what would be the most efficient way to retrieve it? Circle your choice:

> a) drive to Tempe and get it yourself;
>
> b) use document delivery;
>
> c) use interlibrary loan;
>
> d) call Hayden Library and ask them to hold it for you.
>
> e) find the book at a closer, local library.

6. How would you find a video in the ASU Libraries' Catalog?

INDEXES/PERIODICALS
7. Name two journal indexes you can access through the ASU Online System.

8. Which contains more information about a work, an index or an abstract?

9. What does CD-ROM mean?

10. Which type of periodical is more research oriented? Circle your choice:

> a) a journal, or....
>
> b) a magazine.

11. How would you structure a CD-ROM index search on the effects of violence on children?

APPENDIX C (CONT'D.)

INFORMATION SOURCES

12. In order to identify and locate a work (book, article, etc.), you need a full:

    a) biography;

    b) citation;

    c) digest.

13. Information about a current event would most likely appear last in (circle your choice):

    a) a book;

    b) a magazine article;

    c) an encyclopedia;

    d) a newspaper article;

    e) an almanac.

14. A primary source is:

    a) the most important work on a subject;

    b) the first source you find when doing research;

    c) an original source in a field of study;

    d) an analysis of previous sources.

APPENDIX C (CONT'D.)

Pre/Post Test continued...

This section tests your ability to 1) analyze an information need, 2) identify the type of information source which may satisfy the need, and 3) locate the type of source by area of the library.

DIRECTIONS: Read each item carefully. Decide which area of the library (or type of information source) is the most logical place to begin your search for the information described (on the next page). Put the letter of that area on the line preceding the question.

Library Area or
Information Source
    a) ASU Online System
    b) Index tables/CD-ROM Indexes
    c) Information Desk/Reference Collection
    d) Circulation Desk/Reserve
    e) Journals and Microforms
    f) Media
    g) Fletcher Library Serials List

_____15. Bateson, Gregory. An Ecology of Mind.

_____16. The call number of the periodical Flash Art.

_____17. A 1954 copy of the New York Times.

_____18. Charlie Chaplin's birth date.

_____19. Journal articles for a paper on homeless mental patients.

_____20. Pick up a document delivery item.

_____21. Request materials from another library.

_____22. View a videotape.

_____23. Material left by an instructor for class use.

_____24. A listing of academy award winners.

di Spring 1992

APPENDIX D

CLASSROOM PRESENTATION EVALUATION CHECKLIST

NAME _____ CLASS NAME & NO. _____ DATE_____

	Yes or N/A	Not This Time

Comments

A. ORGANIZATION
  1. Well prepared for presentation.   _____

  2. Objectives of presentation developed beforehand
     and clearly presented   _____

  3. Designed instructional unit to meet stated
     objectives   _____

  4. Effectively organized lecture   _____

  5. Stressed search strategy or appropriate
     conceptual framework   _____

  6. Materials selected are appropriate for
     level of audience   _____

B. PRESENTATION
  1. Information presented accurately
     and clearly   _____

  2. Made an effort to involve students--
     for example, provoked questions
     and comments; used small-group
     activities; required audience to
     work through examples, gave a
     quiz, etc.   _____

  3. Evidences such qualities as
     enthusiasm, warmth, openness,
     flexibility, spontaneity, and a
     sense of humor   _____

  4. Was conscious of nonverbal
     behavior--eye contact, movement
     around room, hand movements;
     avoided nervous habits--rocking, etc.   _____

C. SUPPORTING MATERIALS
  1. AV materials clear, visible,
     effective, attractive   _____

  2. Handouts effectively organized,
     helpful, relevant, attractive   _____

ASU Librarians Handbook   12/20/89

APPENDIX D (CONT'D.)

1. What would you have done differently?

2. What techniques produced good results?

3. Additional comments:

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APPENDIX D (CONT'D.)

LIBRARY INSTRUCTION REQUEST AND REPORT FORM

Requestor: _____ Office No: _____ Phone: _____

Course Name/Number: _____ Students: _____

Class Meeting: Day: _____ Time: _____ Rm: _____

Library Session: Date: _____ Time: _____ Rm: _____

Librarian: _____ Phone: _____

Reserve Library Classroom? Yes_____ No_____ Reservation made by: _____

Send copy to: Info Desk _____ JMM _____ Requestor _____ Other _____

Request taken by: _____ Date: _____

Class Assignments & Topics:

Sources/Services to Emphasize:

Materials/Equipment Required:

Instructional Goals:

1._____

   _____

2._____

   _____

3._____

   _____

ADVANCES IN MAP LIBRARIANSHIP:
AUTOMATION NOW AND INTO THE FUTURE

CHRISTINE KOLLEN
Map Librarian
University of Arizona Library

and

CHARLENE BALDWIN
Head Map Librarian
University of Arizona Library

This paper describes the current and future trends of map automation including the following issues: the library vs. laboratory dilemma, possible options in bibliographic access to computerized data sets, and our experiences in reaching out to others involved in map automation.

The future is happening now in map libraries throughout the world. Maps, like books and periodicals, are becoming available in automated formats, such as CD-ROMs, floppy disks and magnetic tapes. Maps are also being offered as digitized data sets which require powerful computer workstations, printers and plotters, and complicated Geographic Information System software to provide access to the user manipulating the data to produce unique customized maps.

In this paper we will be looking at three current and future issues of map automation: the library or laboratory dilemma, options in the provision of bibliographic access to computerized data sets, and our experiences in collaborating with others involved in map automation.

Issue One: Library or Laboratory

A map library can be a repository of published maps and atlases or a laboratory providing computerized access to digitized data from which users can create customized representations of self-identified data. The more we move into the realm of a laboratory, the more we will become active participants with users in creating information. We will probably always have a library but we will need to decide in which area we want to concentrate our limited resources--repository or laboratory. Map libraries have traditionally collected atlases, sheet maps, and globes. As more and more maps are published as magnetic tapes, floppy disks, and CD-ROMs, map libraries are acquiring these automated formats in addition to the traditional ones.

As soon as a library begins to acquire automated map products, it needs a computer workstation to provide access to them. A minimum workstation today as defined by the U.S. Government for its CD-ROM products consists of a 386 SX machine operating at 20 mHz, 16 megabytes of RAM memory, dual floppy disk drives, 150 megabytes of memory on a hard disk, VGA display capabilities, a CD-ROM drive, a printer and a modem, as well as a full complement of basic software for DOS 3.3 or 5.0: database management, spreadsheet, wordprocessing, and communication software. The new ARL/GIS Literacy Project requires even more. Examples of automated map products to run on these workstations include:

Perfect*Art, the Electronic Atlas of Arkansas, PC-Globe, Geophysics of North America, and the TIGER Line Files and Census data.

Perfect*Art is simply a set of wordprocessing clip art graphics. These are files of outline maps and symbols used with a WordPerfect document. Perfect*Art's features include scaling and rotation. You can also type over the image to label it or add information. There is no interactive customization; that is, the user cannot change the outline of the graphic.

A cartographic database is a database which contains cartographic data together with the management software necessary for its collection, update, and output. The Electronic Atlas of Arkansas is a cartographic database. It is the first electronic atlas published in the United States available initially as either a CD-ROM or a floppy disk, and only later in book form. Presented in book-like format in 17 "chapters", it has a page-turning feature between map and text. There is no interactive customization.

PC-Globe is another cartographic database. It can best be described as a computerized atlas of the world. It is only available in electronic form. The latest version, version 5.0, has 208 countries represented. It focuses on the world, a region, a continent, or a country. The following three figures are examples of maps and graphs that can be produced using PC-Globe. Figure 1 is a map of the world with Russia highlighted. Figure 2 is a map of Russia showing major cities. Comparative data are available and customized country and regional comparisons on a wide range of subjects are possible. Figure 3 is a bar graph of Gross National Product (GNP) for the top 15 countries plus Vietnam.

GIS is an acronym for Geographic Information System. It is a computer system that stores and links non-graphic attributes or geographically referenced data with graphic map features to allow a wide range of information processing and display operations, as well as map production, analysis, and modeling.

The Geophysics of North America is a Geographic Information System available on CD-ROM. It was developed as part of the Decade of North American Geology (DNAG) and provides land and marine geophysical data. Data selections include vegetation, topography, magnetic anomalies, and earthquake epicenters. Customized output is available; that is, scope of coverage, themes to appear, ranges for data, color attributes, and other features can be decided by the user.

TIGER Line files are digitized data sets available on CD-ROM or magnetic tape. They require GIS software in order to "see" the maps. TIGER is an acronym for Topologically Integrated Geographic Encoding and Referencing System. TIGER was first developed in 1983 in anticipation of the 1990 Decennial Census of the United States. It has automated the mapping and other geographic activities to support census data. The digitized data was produced from maps at a scale of 1:100,000. Available data show census boundaries, streets, railroads, and significant hydrologic features. It requires an additional software interface between TIGER and the census data. Customized output is possible.

Issue Two: Bibliographic Access Options

There are rules and procedures found in various manuals as a guide to cataloging cartographic materials in print form. These rules cover sheet maps, atlases, globes, and even microfilm and microfiche. Figure 4 is an OCLC record of a printed census map. The cataloger has the item in hand and catalogs it, using the information found on the item. Notice the title about midway down the page in the 245 field, "Census tract/block numbering area outline map." Also notice the physical description field in the 300 field.
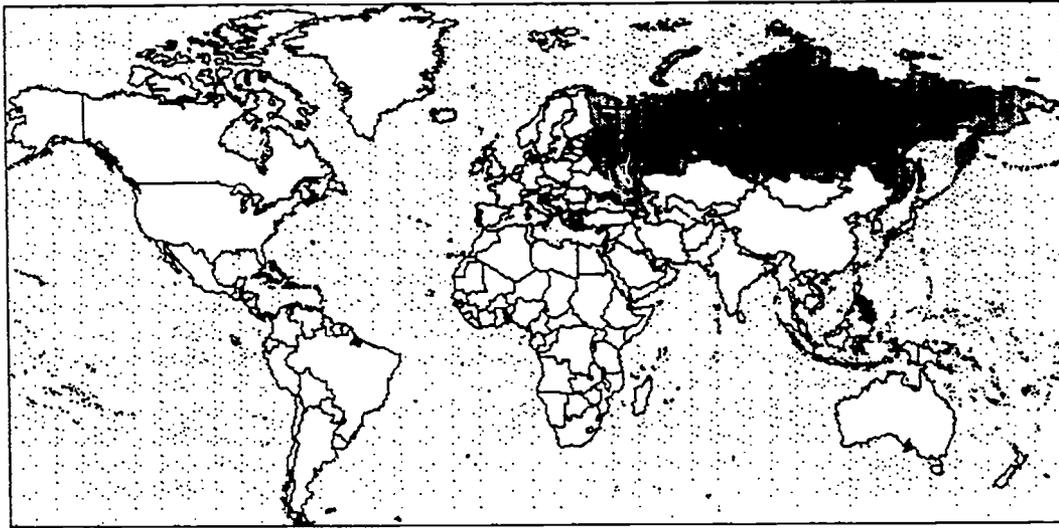
RUSSIA

Figure 1
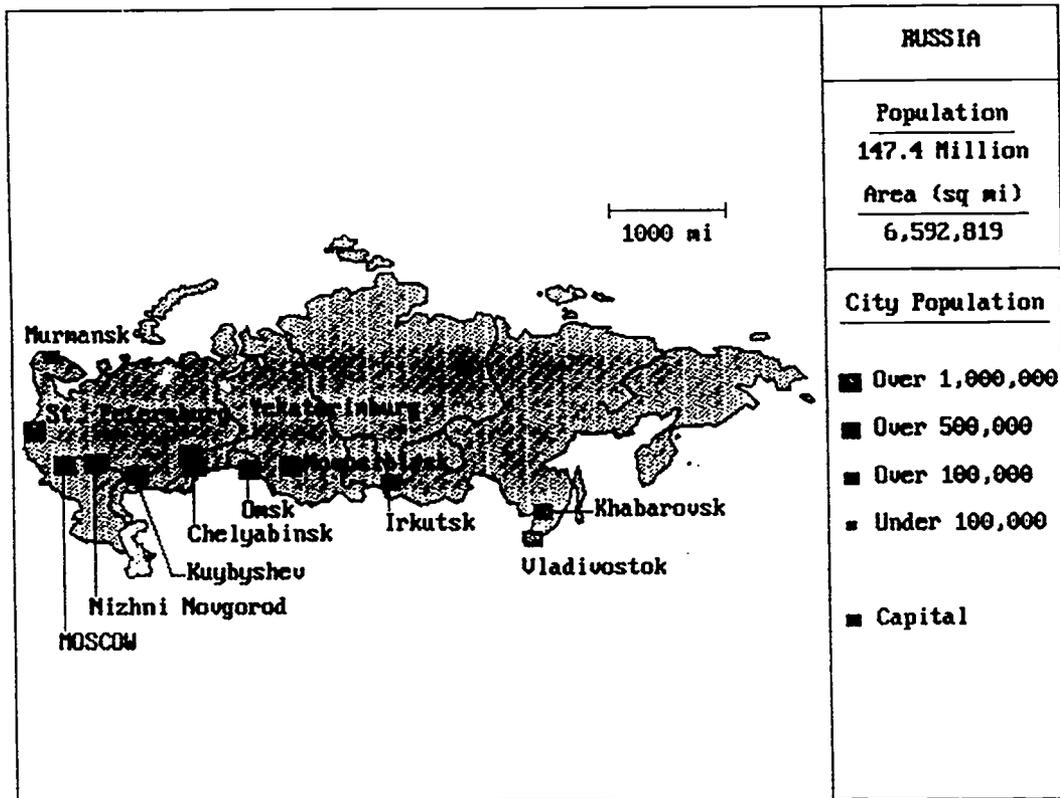
RUSSIA
Population
147.4 Million
Area (sq mi)
6,592,819
City Population
■ Over 1,000,000
■ Over 500,000
■ Over 100,000
▪ Under 100,000
■ Capital

1000 mi

Murmansk
St.
Omsk
Chelyabinsk
Irkutsk
Khabarovsk
Kuybyshev
Vladivostok
Nizhni Novgorod
MOSCOW

Figure 2

21

GNP 1991
(in millions of $US)


```
1  USA                              5,567,478
2  JAPAN                         3,158,607
3  USSR (FORMER)            1,490,370
4  GERMANY                   1,482,549
5  WEST GERMANY (FORMER)    1,319,198
6  FRANCE                    1,035,185
7  ITALY                       987,182
8  UNITED KINGDOM              884,967
9  RUSSIA                      882,501
10 CANADA                      534,938
11 CHINA                       479,879
12 BRAZIL                      401,090
13 SPAIN                       377,229
14 INDIA                       319,864
15 AUSTRALIA                   257,376
ACT VIETNAM                     16,563
```
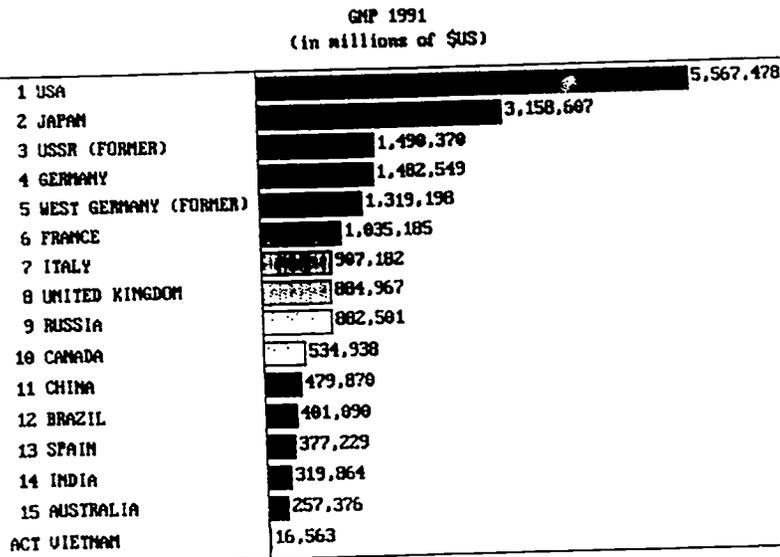
Figure 3

```
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000  nem  Ia
001  26376748
005  19920811
008  19920811s1991     azu        a  s  o    eng d
009  589
007       /aa /bj /da /ea /fz /gb /ha
034  1    /aa /b152000
034  1    /aa /b25000
052       /a4333 /bP4
052       /a4334 /bT8
090       /aG4333.P4 /bE25 1990, U5
110  1    /aUnited States. /bBureau of the Census.
245  10   /aCensus tract/block numbering area outline map 1990 : /bPima
          County (019), Arizona (04) / /cU.S. Department of Commerce, Bureau
          of the Census.
255       /aScale [ca. 1:152,000].
255       /aScale [ca. 1:25,000].
260       /a[Phoenix, Ariz. : /bState Data Center, /c1991.]
300       /a7 maps : /bphotocopy ; /c82 x 61 cm. and 64 x 64 cm.


R e c o r d  1  o f  1
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500       /a"Map generated: 4/5/91."
500       /aBlack line print.
500       /aBase map generated using digital data obtained at 1:100,000-scale
          through a cooperative program with the United States Gaological
          Survey.
500       /a"Map not to be used for update purposes."
500       /aSheets numbered and designated as parent sheets for the county.
          Additional sheets are designated as insets of densely populated
          areas.
650  0    /aCensus districts /zArizona /zPima County /xMaps.
651  0    /aPima County (Ariz.) /xCensus, 21st, 1990 /xMaps.
740  01   /aPima County : census tract/block numbering area outline map 1990.
```

Courtesy OCLC

Figure 4

Into the picture comes cartographic material in automated form, such as found on CD-ROMs, magnetic tapes, and floppy disks. Cataloging these materials is not straightforward, and rules and procedures have not been standardized. For example, Figure 5 is a screen print from a digitized data set of TIGER line files. It looks like just columns of numbers. These numbers represent the geographically encoded and referenced features of Pima County, Arizona. We know this because of the code that is attached to it: 04 is Arizona, 019 is Pima County, and F42 is the file which codes coordinate points for making maps of this county. This file is one of 180 TIGER line files on the Arizona CD-ROM prepared by the U.S. Bureau of the Census and sent free to the University of Arizona Library as part of the U.S. Depository Library Program. What is the best way to catalog these data sets? Should the CD-ROM itself be cataloged or should the individual files be cataloged? Currently, catalogers are cataloging the CD-ROM itself as a computer file. There are rules and procedures developed for cataloging floppy disks and CD-ROMs as discrete items. Does this provide the "best" bibliographic access for the user or is something more needed? Figure 6 is an OCLC record for a TIGER CD-ROM. The title, in the 245 field, is "TIGER/line census files, 1990 Arizona, computer file." The physical description, in the 300 field, is "1 computer laser optical disk." The map described in Figure 4 was produced from the TIGER CD-ROM described here.

Figure 7 is an OCLC record for the Electronic Atlas of Arkansas. This level of cataloging is appropriate for the Electronic Atlas of Arkansas since it is a cartographic database and not GIS. The title, in the 245 field is "The Electronic Atlas of Arkansas, computer file." The physical description, in the 300 field, is "1 computer laser optical disk." Also note the file characteristics, in the 256 field, directly after the 245 field. This field defines the characteristics pertinent to the computer file and is not present in the previous OCLC record (figure 6) for the TIGER/Line census files.

Figure 8 is an OCLC record of the Geophysics of North America. The title in the 245 field is "Geophysics of North America, computer file." The physical description, in the 300 field, is "1 computer laser optical disk." Note that as in figure 6 there is no 256 field. This illustrates the inconsistencies in cataloging CD-ROMs. These past three examples have cataloged the CD-ROM as the physical item. This may not be the best way to catalog the TIGER line files or the Geophysics of North America.

In conclusion to this issue, there seem to be three possible cataloging choices. 1) Do you catalog each map produced in print form from a data set? Each of the maps is unique. You may want to if the map is added to the collection, but not if the user takes it away as a customized one-time production. 2) Looking into the future, as all automated formats are loaded into a mainframe and are compatible, a user will be able to pull in files from different sources to produce a map. Does this mean that bibliographic access needs to be provided to each file in a data set? If the answer is yes, a myriad of questions emerges. How will all the files be identified and how will they be cataloged? How are the bibliographic records linked together? Do cross references need to be provided between the files and between the files and data set? Would it be possible to link them through a parent-child relationship, that is, the data set is the parent record and the files are the child records. 3) Do you catalog the item, for example CD-ROM, magnetic tape, or floppy disk and make content notes or cross references related to the individual files? This would give you access to the files without cataloging each individual file. Will that provide the user with enough information?

Bibliographic access decisions must be based on what will provide the best access to users. In addition, with the ever-increasing changes in automation, consideration must be given to what may happen to map automation in the future.

```
20003 121211509  1-111558942+31501121-111559611+31501121-111560226+31500960-1115
61457+31500317-111561993+31500000-111562046+31499652-111562287+31499618+00000000
0+00000000+000000000+00000000+000000000+00000000
20003 121207349  1-111000326+32500000-111000000+32500000-110987513+32500000-1109
84754+32500000+000000000+00000000+000000000+00000000+000000000+00000000+00000000
0+00000000+000000000+00000000+000000000+00000000
20003 121120064  1-111545277+31500000+000000000+00000000+000000000+00000000+0000
00000+00000000+000000000+00000000+000000000+00000000+000000000+00000000+00000000
0+00000000+000000000+00000000+000000000+00000000
20003 121211512  1-111545999+31498085-111547417+31498567-111548700+31499369-1115
49342+31500000-111552122+31501716-111553112+31502037-111554021+31501922+00000000
0+00000000+000000000+00000000+000000000+00000000
20003 121120066  1-111523293+31497256-111523427+31497485-111523614+31498310-1115
23774+31498516-111524870+31498998-111525619+31499558-111525913+31500000-11152658
0+31500395-111526741+31500418-111528452+31501941
20003 121120066  2-111529762+31502354-111530457+31503042-111530564+31503248-1115
31046+31503684-111531714+31503890-111532704+31504463-111533613+31504899-11153401
4+31505541-111534041+31505816-111533720+31506205
20003 121120066  3-111533800+31506526-111534709+31507374-111535163+31508039-1115
35645+31508520-111536527+31509002-111536554+31509299-111536661+31509414-11153754
3+31509758-111537570+31510102-111537731+31510285
20003 121120066  4-111538453+31510652-111538640+31511110-111538640+31511408-1115
38987+31511615+000000000+00000000+000000000+00000000+000000000+00000000+00000000
0+00000000+000000000+00000000+000000000+00000000
20
```

Figure 5

```
R e c o r d  1  o f  1
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000  cmm  Ia
001  24499370
005  19920211
008  19911004s1991    dcun      u f      N/A d
009  1016
040      /dGPO
043      /an-us-az
074      /e154-E
086  0  /eC 3.279:Ar 4 i/990/CD
245  00 /aTIGER/line censue files, 1990. /pArizona /h[computer file].
260      /aWashington, DC : /bU.S. Dept. of Commerce, Bureau of the Census,
         Data User Services Division, /c[1991]
300      /al computer laser optical disk : /c4 3/4 in.
520      /aAn extract of selected geographic and cartographic information
         from the TIGER data base.
520      /aContain digital data for all 1990 census map features (such as
         roads, railroads, and rivers), feature names and classification
         codes, alternate feature names, the associated 1980 and 1990 census
         geographic area codes and FIPS (Federal Information Processing


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         standard) codes.
538      /aSystem requirements: IBM-compatible personal computer with 640K
         memory; Microsoft CD-ROM extensions version 2.0 or higher; can also
         be used with Apple Macintosh CD-ROM readers and software setup.
538      /aDisk characteristics: CD-ROM.
538      /aWritten in dBase III and ISO 9660 formats.
500      /eTitle from label.
500      /aReplaces the 1980 GBF/DIME-Files.
500      /aShipping list no.: 91-042-E.
500      /a"Issued July 1991."
522      /aArizona.
650   0  /aDigital mapping /xData bases.
651   0  /aArizona /xMaps /xData bases.
710  10  /aUnited States. /bBureau of the Census. /bData User Services
         Division.
```

Courtesy OCLC

Figure 6

24

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000  nmm  Ka
001  19964068
005  19900627
008  19890705s1989    arun      m s       eng d
009  2323
020      #a1557280924 : #c$99.00
086      #aHI.F 3/178-8:E 43/989 #2ardocs
090      #aG1355 #b.E53 1989
092      #a912.767
245  04 #aThe electronic atlas of Arkansas #hcomputer file / #cproduced by
         Department of Geography, University of Arkansas ; [Richard M. Smith,
         editor].
256      #aComputer data (115 records) and program (1 file, 236 records).
260      #a[Fayetteville, Ark.] : #bUniversity of Arkansas Press, #ccl989.
300      #a1 computer laser optical disk : #bcol. ; #c4 3/4 in. + #e1
         booklet.
538      #aDisk characteristics: compact disk.
538      #aSystem requirements: PC/XT/AT/PS2 or compatible; 512K; EGA or VGA
         card and color monitor; CD-ROM drive; MS DOS 3.1 or later.


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500      #aTitle from title screen.
530      #aAlso available on floppy diskettes.
530      #aPublisher "has also published a printed atlas based on the text
         and computer images contained in this electronic edition"--booklet,
         p.1.
520      #a"Seventeen chapters cover physical, human, economic and historical
         geography. ... In all there are 106 topics  each with maps and
         written text."--booklet, p.1.
504      #aBibliography on disk.
651   0 #aArkansas #xMaps.
651   0 #aArkansas #xEconomic conditions #xMaps.
651   0 #aArkansas #xSocial conditions #xMaps.
740  01 #aAtlas of Arkansas.
700  10 #aSmith. Richard M., #d1938-
710  20 #aUniversity of Arkansas, Fayetteville. #bDept. of Geography.

                     Courtesy OCLC
```

Figure 7

```
R e c o r d   1   o f   1
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000  nmm  Ia
001  22696081
005  19901115
008  19901115s1990    coun      d         eng d
009  495
100   1 #aHittelman, Allan M.
245  10 #aGeophysics of North America #h[computer file].
250      #aRelease 1.1.
260      #aBoulder, Colo. : #bNational Geophysical Data Center, National
         Oceanic Atmospheric Administration, #c1990.
300      #a1 computer laser optical disk : #bcol. ; #c4 3/4 in. + #e2
         computer disks (5 1/4 in.) + 1 user's manual (1 v. ; 23 cm.)
500      #aOne access software disk and 1 tutorial disk.
500      #a"By Allen M. Hittelman, John O. Kinsfather, Herbert Meyers"--
         User's manual.
500      #a"July 1990"
538      #aSystem requirements : IBM PC/AT or compatible ; 3 MB ; enhanced
         graphics adaptor graphics board ; PC DOS 2.1 or higher ; 1 compact
         disk drive ; monitor ; printer (optional)


R e c o r d   1   o f   1
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538      #aDisk characteristics : compact disk.
650   4 #aGeophysics #zNorth America #xCD-ROM.
700  10 #aKinsfather, John O.
700  10 #aMeyers, Herbert.
710  20 #aNational Geophysical Data Center.

                     Courtesy OCLC
```

Figure 8

3

Issue Three: Cooperation

As more and more products become available for acquisition and as inflation continues to increase, there will continue to be a need to pool resources to purchase these items. The following are examples of cooperative activities that a map library may be involved with: cooperative acquiring of expensive databases, sharing expensive equipment, sharing data through electronically-linked "libraries" of images and data, and referring users to appropriate information centers. Knowledge of others involved in map automation is important to map librarians today. Sharing of information and working on joint projects benefits all involved. Map libraries are increasingly collaborating with faculty in other departments on the university campus; with city, county and state government agencies producing and distributing both digitized information and products derived from them; and with private companies in the for-profit production of automated cartographic software and software products. The staff at the University of Arizona Map Collection have been developing liaison opportunities for some time. For example, the Map Collection is a member of the College of Agriculture Advanced Resources Technology Program (ART), which seeks to centralize the GIS related curriculum for the College. ART also maintains a computer learning and teaching laboratory for developmental and research purposes. The Map Collection is investigating ways to link its resources to those of the ART lab. The library has also worked on cooperative projects with the Faculty of Humanities Language Research Center (LRC). The LRC has been a leader in interactive video, hypercard, and InfoWindow applications, technology appropriate to new initiatives in the library for Computer-Based Instruction and the Campus Information System. The Arizona State Data Center and the IMAGIN Project, a geographic information services program of Pima County, are two government agencies with whom the University of Arizona Map Collection will increasingly cooperate as we begin implementing our own TIGER/Census workstation. Companies, such as Environmental Systems Research Institute (ESRI), are cooperating with map and government documents collections in the United States by providing GIS software and technical support for projects such as the ARL/GIS Literacy Project.

It is also important to communicate and collaborate with other librarians and information professionals. One way is through electronic mail. There are a number of electronic conferences or forums through which librarians interested in map automation can communicate. These include: TIGER-l, GIS-l, Maps-l, Innopac-l, and Pacs-l. Cooperative projects such as the 1990-1991 TIGER Test Project and the new ARL/GIS Literacy Project will help facilitate the development of needs-based services.

The ARL/GIS Literacy Project was developed to address the growing number of government data files in CD-ROM format provided to the U.S. federal depository libraries with little if any effective software. This project coordinated with the Association of Research Libraries (ARL) has invited 55 institutions to work with ESRI in a two-phase multi-year project. Goals of the project are to provide effective access to federal electronic data, especially the census data; to review and evaluate the introduction of GIS service to research libraries; to identify what needs to be done to introduce GIS into the library community; to address critical short term needs of ARL libraries to provide government information; and to develop new capabilities in research libraries.

Conclusion

In conclusion, these are some of the issues currently being faced by map librarians throughout the world. The decisions made on these issues will profoundly affect the map

library of the future. All three issues are strongly interrelated. For example, a decision to concentrate on a map laboratory will affect decisions concerning bibliographic access and cooperative activities as well as collection development decisions. A decision to provide detailed bibliographic access to the individual files in data sets will increase the time it takes to make the materials available and may be beyond the time limitations of available staff. Increasing the library's collaborative activities with others involved in map automation will require commitments of time and resources but will benefit the user with increased access to information.

REFERENCES

The Electronic Atlas of Arkansas. 1989 (CD-ROM). Fayetteville, Ark. : University of Arkansas Press.

Geophysics of North America. Release 1.1 (CD-ROM). Boulder, Colo. : National Geophysical Data Center, National Oceanic & Atmospheric Administration.

PC-Globe. Version 5.0. Tempe, Ariz. : PC Globe.

Perfect*Art. 1989? (Graphics files). Riverside, Calif. : Arkeo.

TIGER/Line Census Files 1990. 1991 (CD-ROM). Washington, D.C. : U.S. Dept. of Commerce, Bureau of the Census, Data User Services Division.

ACCESS AND DELIVERY OF FEDERAL ELECTRONIC INFORMATION IN THE 1990s: FUTURES FOR THE DEPOSITORY LIBRARY COMMUNITY

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Documents Law Librarian
College of Law Library
Arizona State University

Early in 1992, the U.S. Government Printing Office [GPO] released the outline of its strategic plan for the next 10 years: GPO/2001: Vision for a New Millennium. The report has been commended for its approach to solving some of the dilemmas of the electronic age by addressing new document delivery systems. However, despite GPO's proactive stance, the library community needs to not only look closely at the provisions and proposals in the report, but also to look at these in the context of past and present information policies in the federal government. Congressional forces, defined as the Joint Committee on Printing and the Government Printing Office [GPO], have tried to maintain control over agency publication production and dissemination activities, for the most part supporting a policy of free access to government information. The Administration's position, largely defined by the Office of Management and Budget [OMB] through its circulars, maintains that only legislatively mandated information is covered by a policy of free access. OMB supports charging for government information and/or privatizing the distribution of information through licensing agreements or other types of contracts. Judicial decisions in recent years have contributed to a Congressional loss of oversight power by reliance on the separation of powers doctrine. Thus the courts have increased confusion over information policy by weakening the Joint Committee on Printing's interpreted enforcement powers dealing with agencies' obligation to distribute material through the Depository Library Program mandated by law in Title 44 of the United States Code.

Recently Congress has indicated an interest in the revenue producing possibilities of selling government information. This interest coupled with the past history of information policies provides some cause for concern over the GPO initiative. A significant part of the GPO/2001 plan is a system called "INTERACT," a GPO Sales Program provision which specifically does not mention a Depository connection and which seems to include an interactive gateway service, much like Dialog, to agency electronic files. While depository librarians and library associations are actively commenting on the plan, and are concerned over the implications of INTERACT, they are waiting to look at the detailed plan, to be titled Blueprint for the New Millennium. The GPO/WINDO initiative, Gateway proposal and the NREN possibilities also factor into the equation.

While GPO's efforts are laudable, and there is much interest in the initiative by both the private and public sectors, what is needed is a clear, modern and comprehensive information policy statement from Congress, passed as a law. Without such a mandate, information policy of the future will remain in suspension floating between the powers, reacting largely to pressures and pulls from one side to the other.

The U.S. Government Printing Office [GPO] is not known for its initiative or for its quick adaptability to new technologies and challenges. Public Printer Houk recently issued an outline of GPO's strategic plan of development, GPO/2001, which could greatly impact the current programs of dissemination of federal information to the public, particularly through the Depository Library Program mandated by Title 44 of the U.S. Code.

The plan, GPO/2001, is a small, 48-page, broadly written document. In order to evaluate the plan in terms of its potential impact, the immediate history of GPO within the context of federal government information policy must be assessed. For the purposes of this analysis, a history of GPO begins in the early 80s. This period followed the innovative and active 70s, a decade that saw great changes in the operations and programs of GPO and in the assertiveness of interested parties to GPO policies, librarians, private sector entities and the public.

History of GPO and Federal Information Policy, 1980-1990

The Paper Work Reduction Act, signed by President Carter in December of 1980, sent up the first signals of information policy changes within the federal structure. The act began the centralization of control or oversight of federal data gathering and publishing within the office of the President. The act states that any agency producing statistics or doing record keeping involving data gathering must have prior approval from the Office of Management and Budget [OMB]. OMB is a part of the Executive Office of the President, created by Executive Order 11541. In its relationship to federal agencies, OMB acts as the President's policy steering committee. In 1981, adding another piece to the mechanism of control, President Reagan, with Executive Order 12291, established a central responsibility for oversight for agency rule making prior to complying with the legislative safeguards of the Administrative Procedure Act (5 U.S. Code). This order requires that prior to publishing a notice of proposed rule making or a proposed rule in the Federal Register, regulatory agencies must submit to OMB a statement of the need for the new rule or modified rule. This review process provides OMB with a mechanism removed from public knowledge to drop, delay or change a regulatory action without other input. As noted by Senator Carl Levin, in a statement delivered at a Senate hearing in 1983, Regulatory Reform Act (22-23): ". . . while I see the value in OMB's role in reviewing rules, my support for any delegation of that function by Congress or assumption of that authority by Executive Order is premised on the openness of any such process. I think that is a critical element to a central review process and missing element, unfortunately, under the current Executive Order. The absence of openness creates the specter of special interest politics permeating the implementation of Executive Order 12291." Levin goes on to describe a situation where proposed safety rules were held at OMB, and industry influence was probably used to thwart open review of the proposal. He then states: " . . . the basic premise upon which the Administrative Procedure Act was enacted into law and subsequently interpreted by the courts--that informal rule making is to be a public process, one involving a dialogue and exchange of views between an interested public and the rule making agency. Public awareness and involvement is what the notice and comment provisions of Section 553 of Title 5 are all about. The current operation in OMB for reviewing rules under Executive Order 12291 stand this premise established by Congress in 1946 on its head. OMB activities under Executive Order 12291 are largely hidden from public scrutiny."

Centralized control in the Executive branch of agency activities in the gathering and production of information as well as in regulatory activity, was also bolstered by Supreme Court decisions in the 80s. In Immigration and Naturalization Service v. Chadha, 462 U.S. 919 (1983), the Supreme Court invalidated legislative vetoes or oversight on the separation of powers doctrine. Further, the Bowsher decision, Bowsher v. Synar, 478 U.S. 714 (1986),

held that oversight of the budget by the Comptroller General was unconstitutional because the Comptroller General is a legislative officer, not a executive officer. Note here that GPO is a legislative agency and the Public Printer, a legislative officer like the Comptroller General, in contrast to OMB. The budget oversight problem was later solved by an amendment to Gram, Rudman, Hollings Act, "Balanced Budget and Emergency Deficit Control Act of 1985," which transferred the oversight duties which had been assigned to the Comptroller General, to OMB. After Chadha and Bowsher, GPO was left with arguments about its power to require agencies to comply with Title 44. In an editorial summarizing the situation brought on by the Chadha decision, Anthony Zagami, General Counsel for the Joint Committee on Printing, concluded that the decision ought to have no application to the Depository Program. However, OMB and the Justice Department interpreted the court decisions to mean that compliance to Title 44 was limited to items or publications specifically mandated or required by law, not necessarily to products produced through agency activity financed by tax dollars. Thus, with the oversight of agency regulatory functions, and with information gathering and dissemination activities centralized in the executive office rather than with Congress, the Reagan practice of privatization of government services was expanded and applied to government information and information delivery. In 1983, on the heels of Chadha, beginning the movement to bring federal information out of GPO's or Congressional domain, OMB solicited comments on the development of a information management circular (Development, 1983), stating that "information is not a free good but a resource of substantial economic value." "Information" in the March 1985 draft of OMB Circular A-130, and in its final version (Management, 1985), became a commodity to be managed, and while in its final version, the Circular mentioned that "agencies shall establish procedures for ensuring that government publications are made available to depository libraries as required by law," the emphasis was on the phrase "required by law." In fact, from 1981, agencies received a series of OMB bulletins, circulars and memoranda largely bypassing JCP or GPO requirements dealing with government information dissemination activities. Peter Hernon and Charles McClure detail these activities and others in their book discussing federal information policies during the 1980s (Hernon, 226-259).

As if competing with Executive policies to maximize profits, GPO raised its prices in the early 80s. In 1982, the price of the Federal Register went from $75 per year to $300, the Congressional Record from $75 to $208. Many other publications and subscription services followed suit. Also in 1982, Public Printer Danford L. Sawyer Jr., proposed to close 24 of the 28 GPO bookstores because they competed with the private sector. Only a scandal over Mr. Sawyer's office decoration costs, brought out by columnist Jack Anderson, staved off the proposal (Swarzkoph, 1982). Later in 1986, an administration proposal to privatize the National Technical Information Service was also given serious consideration.

History of GPO and Federal Information Policy, 1990 -

As if part of a grand design to truly transform federal government information into a profitable enterprise rather than a public trust, the end of the 80s brought the Omnibus Budget and Reconciliatio:. Act which added a new dimension to the landscape. The Act requires Congress to provide new sources of revenue for any new program authorized by law or where a funding source for an ongoing program is cut by law (Omnibus, 1388-603 - 605). With this requirement, the 90s added to the complexities of federal information policy the concept of agency information entrepreneurs, federal government offices ready and willing to produce, market and sell their electronic information to the public and to the private sector. With budget and funding cuts, agencies are seeing revenues in their information resources, directly and through licensing and royalty arrangements. From the agency viewpoint, electronic information, either disseminated through on-line bulletin boards, in CD-ROM

format, or via satellite transmission is particularly tempting material to consider as a source for revenues. While paper and microfiche products will never become obsolete or extinct, electronic magic is replacing and expanding many of the formerly print services.

The vitality of the expanding federal electronic capabilities and market for them can be seen in the fact that within seven years, GPO's policy on the distribution of electronic information turned from the position that electronic information is not and was never meant to be a part of the Depository Library Program (Brown, 1982), to the position that electronic information distribution can be a part of that program (General Counsel, 1989). In 1988 a report from the Congressional agency, Office of Technology Assessment, Informing the Nation, was printed addressing government information in the electronic age. The report focuses on the process of information dissemination. not on collection, and particularly discusses the current needs and the future options for change. The problems of equity in public access to federal information in the electronic format and definition of government roles in the electronic dissemination process are also addressed. Coincidentally, near the time of the release of the report, JCP approved 5 pilot projects, involving electronic dissemination of government information (Dissemination, 1988), and GPO began to consider the challenges and policy issues associated with this new type of material.

Federal electronic information policy is of primary importance to the public and libraries because, while paper and fiche can easily fulfill the requirements of distribution specifically mandated by law that agencies provide, information in electronic format is a huge volume of current, vital and comprehensive data used for agency work and not specifically required by law to be distributed. GPO's 90s stance on electronic information is that while Title 44 does not forbid distribution of information in electronic format, it also does not require it. This position is surprisingly close to that taken by OMB in their recent 1992 revision of Circular A-130 (Proposed, 1992). This revision requires that the management of information resources reflect agency strategic priorities within budgetary limitations. Agencies are encouraged to take advantage of all dissemination channels, federal and nonfederal, including private sector entities, in discharging agency information dissemination responsibilities (Proposed, 1992, 18300). While the draft states that depository libraries should be sent electronic information when appropriate, when required to fulfill their objectives as stated by law and when feasible, it also clearly sets aside most federal electronic information as a separate resource. In this context there are two areas to note: non-printed, electronic information is seen as specifically excluded from the definition of government publication in Title 44, "informational matter which is published as an individual document (Proposed 18303);" under the section "User Charges," (Proposed 18305-6) an example provides agencies with a guide for the calculation of fees for access to electronic information (Proposed, 18305): "An agency may initially prepare an information product for its own internal use, and costs associated with such production are not recoverable as user charges on subsequent dissemination. When the agency prepares the product for public dissemination, and disseminates it, costs associated with preparation and actual dissemination are recoverable as user fees."

Concurrent to the Executive branch trend to look at information as revenue, Congress also sees revenues in information. A bill introduced in the House of Representatives provides that a tax on boats be repealed (H.R. 2056, 1991). The bill is very popular since the tax would be repealed for pleasure boats as well as commercial ones. Despite the fact that it did not pass, it is very important to look at as a model for current trends. As discussed above with regard to funding new programs or doing away with a source of revenue, Congress must accompany such a proposal with a provision providing a new source of revenue or one to cut funds from another program in order to offset the loss of revenue. As a replacement for this tax, the bill gains revenues by allowing the Federal Maritime Commission to sell tariff information and impose royalties on any vendor or library that makes the tariff

information available to others. The tariff information is in electronic format. Additionally during 1992, LC requested permission from Congress to provide fee based research and information services (L.C. S. 2748, 1992). One of the main concerns over this bill arises from section 302(c)(1), which implies that the LC can impose redistribution fees for customized products and services. For example, if LC sold a database to another library or organization for redistribution, LC would be able to impose royalty fees on the redistribution. Remembering that not long ago LC proposed to charge licensing fees to OCLC for their MARC data base, this provision has a ominous ring (Library to Review, 1989). Bills that would extend copyright protection to computer software developed by federal agencies under cooperative research and development agreements, thus opening the way for agencies to license or charge royalty fees for access to their data on-line, have also been introduced and are being considered seriously (S. 1581, 1991). All of these acts have strong support from the current administration.

Meanwhile, in the midst of the arguments over the above proposals which look at information as revenue, Congress also has acted on proposals that could have a great expanding impact on the dissemination of electronic information in the context of the Depository Library Program. Late 1991, the act establishing the National Research and Education Network [NREN] was passed (High, 1991). NREN will be a highway or communications link between the government, industry and education communities, libraries included. The GPO Wide Information Network for Data Online [WINDO] Bill, H.R. 2772, and the GPO Gateway to Government Act [H.R. 5983], S. 2813, specifically address electronic information dissemination by GPO. Both bills establish GPO as the focal point for public access to government electronic information, and while neither passed, nor did a watered down version of both, H.R. 5983, there is no doubt they will be reintroduced, thus becoming part of the serious proposals on the dissemination of electronic information in the 103rd Congress.

GPO/2001 and beyond

In the opening of GPO/2001, GPO states its mission: "To assist Congress and Federal agencies in the cost-effective creation and replication of information products and services, and to provide the public with the most efficient and effective means of acquiring Government information products and services". In these cautious and revenue resource seeking times, the lack of mentioning uninhibited or unprejudiced "free" access to government information is worth noting. Within the context of this mission, the GPO/2001 report continues with broad descriptions of seven fundamental operations, and then proceeds into a proposed plan for dissemination of electronic information. It is this last function that has direct impact on public access to federal information. "Dissemination Activities" are painted with wide brush strokes on three large canvases:

> FIND, Federal Information Directory, is a universal index to all Government
> information products and services, incorporating directories that already exist
> or are created subsequently. FIND as envisioned by many could be used in
> conjunction with the third part, INTERACT, perhaps through a vehicle such
> as GPO WINDO, or the INTERNET, etc.;
>
> SEND, Satellite Electronic Network Dissemination, would fulfill GPO's
> responsibility to distribute electronic information products and services to
> Depository libraries. GPO adds a caveat here stating "At the present time,
> because of the multiplicity of Depository library locations that need to be
> reached, and their diverse geographical dispersion, satellite dissemination
> appears to be the optimum and most cost-effective means of distribution. But

this does not preclude the utilization of other means of dissemination in combination with - or in place of - satellite dissemination if they should prove to be more cost-effective and efficient." SEND requires that each receiving site have a receiving station. The station would have to be linked to a computer on which transmission would be stored when received. Through their receiving stations, depository libraries would be able to control and even alter daily their receipt of information to meet their exact needs. SEND would increase the amount of information available to a depository library and increase its timeliness dramatically. GPO would have available historical electronic files in formats such as CD-ROM, allowing libraries to purge their on-line electronic systems regularly. SEND would also be available through the Sales section of GPO on a subscription basis.;

INTERACT, the third part of the dissemination system, would service the GPO sales program. In its description of INTERACT, GPO does not mention the Depository Library System. INTERACT is the part of GPO that provides on-line access to the data base of information products and services residing at, or available through GPO. The report states that "many SEND subscribers [depository libraries?] may not wish to maintain the downloaded information on an ongoing basis." These "subscribers," for purposes of research or to gain access to information they may have otherwise excluded from their normal daily transmission, also would be able to access INTERACT as a separate service through any regular telecommunications modem. Because the cost of downloading a sizable file might be substantial, INTERACT users would have the option of having the file created electronically at GPO and sent in the format of their choice: disks, tape, and eventually CD-ROMs written individually. Also print on-demand products would be available through INTERACT and GPO bookstores. GPO foresees more bookstores, and proposes that these bookstores should have print on-demand capabilities.

Reactions to the plan vary widely. ALA expressed that they were positive in response to the exciting challenges envisioned in GPO/2001, and they were enthusiastic about developing implementation for the plan. In a letter to the Public Printer, Patricia Shuman, President of the American Library Association, highlights some interests and concerns dealing with the questions of standards for products and also voice concerns over the requirements and costs of those requirements on libraries wishing to receive electronic information from GPO. INTERACT is described in the GPO/2001 report as part of the sales program only. ALA sees INTERACT as a mode of data transmission which has been proven to be effective and appropriate for certain types of information, and asks why INTERACT is not included in dissemination for the Depository Program materials as well as for the sales program. ALA sees INTERACT as part of or similar to the WINDO and/or Gateway proposals and perhaps as part of the NREN concept. Deep concern over the implications of electronic delivery on the present depository structure have also been brought forward. It is estimated that it would take 84 hours on Internet to send one average size issue of the Federal Register to all 1400 depository libraries. Obviously that is not going to be done. Satellite delivery entails heavy equipment costs on the receivers end. The realities of electronic delivery of information to 1400 libraries seems to require a restructuring of the Depository Library System and thus a change in the law. Although not specifically addressed in the GPO/2001 proposals, the fundamental question concerning the present structure of the Depository Library System has been brought forward by this plan. The agenda for the Fall 1992 meeting of the Depository Library Council was a discussion of the current structure of the Depository Library System and options for change. The full range of subtopics announced by Public Printer Houk for the meeting appeared in GPO's official newsletter to the depository library community, Administrative Notes (Fall 2992).

Other reactions to <u>GPO/2001</u> have been cautious and critical. Mr. Sprehe, president of Sprehe Information Associates, analyzes the proposal from the point of view of the federal agency "client" of GPO. Mr. Sprehe states that while "Congress's information needs are a given and its political decisions crucial to GPO's future, it is the publishing activities of the executive branch that make up the bulk of GPO's business." Mr. Sprehe goes on to point out that "Unlike the print medium where GPO enjoys a statutory monopoly, executive branch agencies are free to produce electronic publications themselves. In the future, agencies presumably will use GPO as an information dissemination agent only because it is more economical and efficient to do so, not because the law compels them to." He asserts "GPO will survive in the new electronic age only if it competes successfully on measures such as price, quality and timeliness." Technology is becoming more and more decentralized, witness desktop publishing and the number of agencies that are acquiring their own CD-ROM mastering capability. Sprehe contends that GPO could offer their centralized distribution point, but because of the decentralization of technology capabilities, without a public policy mandate, agencies may not take advantage or cooperate with the plan (Sprehe, 1992). Paul Peters, Director of the Coalition for Networked Information, a group of research library interests and a sponsor of the WINDO bill, addresses the questions of access and whether networked information resources and services will become sandboxes in which technophiliacs play with their new, expensive toys, or where electronic and networked information resources and services create another stratification of library and/or companies and/or people haves and have nots simply because of the expense of the hardware and training needed for access.

Conclusion

Does <u>GPO/2001</u> provide us with a forecast for the 90s? There is a fundamental struggle within the Congressional and Executive branches. The country needs a federal information policy, one passed as law by the Congress and signed by the President or passed over a veto. Without such a policy, not only is government information dissemination an incredibly complex problem of trying to link together a wide and decentralized variety of information producers to a wide variety of decentralized users, but it is a power and policy struggle that will not end. Increasingly federal information, and particularly electronic information is being seen as a revenue resource. The question of whether this is in the interest of the public or to their detriment breaks down to the question of whether the revenues gained from selling back to the public what they already have paid for through taxes are more important than the largely unmeasured economic value of unprejudiced access to information, access without undue hardship either ascribed to cost or to skill needed or to the status of the user.

Without a legal mandate, there will likely be three massed armies fighting for federal government publishing dissemination rights and profits: Army number being GPO/the legislative branch, Army number two being OMB/the executive branch and their separate agency divisions, and Army number three being the private publishers/information utilities sometimes uncomfortably allied with librarians arguing for free or unencumbered access. Without a mandated policy agencies will manage their markets and sell their information sometimes through GPO and sometimes not, depending on the legislative requirements for their programs. As a result, depository libraries will remain dependent on GPO for some things as they are today, and dependent on their quickness, agility and budgets to obtain other services and information from agencies and private publishers who do not work with GPO. Conceivably, GPO could also become a major information broker in the federal government, delivering through a system called INTERACT information for a price, providing a revenue producing gateway to federal data.

My hope is that the policy challenges of electronic information delivery may be the beginning of a Congressional initiative that supports free or relatively unencumbered and uninhibited access to all government information collected and produced at tax payers expense. Information is really the key to education, economic growth and security if it is protected as a resource of all the people.

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