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Information Needs in the 21st Century:
Will ERIC Be Ready?

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Abstract

Ubiquitous for 35 years, the Educational Resources Information Center
(ERIC) is known for its database and recently for its range of web-based
information services. I contend that federal policy with regard to ERIC
must change and that ERIC will need massive restructuring in order to
continue to meet the information needs of the education community.
Five arguments are presented and justified: 1) ERIC is the most widely
known and used educational resource of the US Department of
Education, 2) senior OERI and Department of Education officials have
consistently undervalued, neglected, and underfunded the project, 3)
ERIC's success is due largely to information analysis and dissemination
activities beyond ERIC's contracted scope, 4) information needs have
changed dramatically in the past few years and ERIC cannot keep up
with the demands given its current resources, and 5) the ERIC database
itself needs to be examined and probably redesigned.

Introduction

The Educational Resources Information Center (ERIC) has been the most visible source for education information since its inception in 1966. As a system of 16 clearinghouses and 3 support contractors, ERIC collects, abstracts, and indexes education materials for the ERIC database; responds to requests for information in subject specific areas; and produces special print and electronic publications on current research, programs, and practices. As we enter into the 21st century and the Information Age, the question to ask is: "Will ERIC be ready?" Taking a hard look at what ERIC has been and what ERIC is today relative to user information needs, I conclude that ERIC will need massive restructuring in order to continue to meet the information needs of the education community.

I base my conclusion on five basic arguments

> 1. ERIC is the most widely known and used educational resource of the US Department of Education.
>
> 2. While ERIC staff, including Office of Educational Research and Improvement monitors, have long appreciated ERIC, senior OERI and Department of Education officials have consistently undervalued, neglected, and underfunded the project.
>
> 3. ERIC's success is due largely to information analysis and dissemination activities that go beyond ERIC's contracted scope.
>
> 4. Information needs have changed dramatically in the past few years and ERIC cannot keep up with the demands given its current resources.
>
> 5. The ERIC database itself needs to be examined and probably redesigned.

In this article, I justify these arguments. In my summary, I look at the federal role in education and conclude that unless ERIC is restructured, the U.S. Department of Education will fragment the nation's already frail educational information infrastructure. Educational research and practice will lose because neither will be able to readily build on past findings.

ERIC is the most widely known and used educational resource of the U.S. Department of Education

In its early years, ERIC was primarily an archive of the education literature. Its main activity was the development of its databases, *Resources in Education (RIE)* and *Current Index to Journals in Education (CIJE)*. Its primary users were researchers; the primary mode of access was through expert intermediaries - typically, reference librarians.

While these two databases continue to be a major cornerstone for all clearinghouses, the rapid advancements of information technology have prompted ERIC to evolve into a much more powerful and useful resource. With the explosive growth of the Internet and CD-ROM products, ERIC as a system is now widely recognized as the central source for educational information.

Table 1
Popularity Rank of OERI ERIC, Regional Laboratories, and Research Center websites as rated by Alexa 8/10/2000

ERIC Clearinghouses		OERI R&D Laboratories		OERI Centers	
Reading, English, & Communication	1,891	Northwest Regional Education Laboratory	41,021	Center for the Study of Teaching & Policy	18,886
* Information & Technology	5,630	Mid-continent Regional Education Laboratory	41,620	National Center for Early Development & Learning	52,336
Assessment & Evaluation	9,512	North Central Regional Education Laboratory	42,519	Center for Improvement of Early Reading Achievement	171,770
Urban Education	58,764	Southwest Educational Development Laboratory	82,744	National Center for the Study of Adult Learning & Literacy	200,195
Social Studies/Social Science Education	67,902	WestEd	102,588	Center for Research on the Education of Students Placed At-Risk	210,687
Disabilities & Gifted Education	97,825	* Appalachia Regional Education Laboratory	167,103	National Center for Improving Student Learning & Achievement in Mathematics & Science	218,904
Community Colleges	99,033	Southeastern Regional Vision for Educators	220,079	Center for Research on Evaluation, Standards, & Student Testing	357,558
* Elementary & Early Childhood Education	157,034	Northeast & Island Regional Education Laboratory	411,025	National Research Center on the Gifted & Talented	402,967
Teaching & Teacher Education	181,268	Pacific Region Education Laboratory	1,020,475	National Research & Development Center on English Learning & Achievement	545,177
Educational Management	209,587			Center for Research on Education, Diversity, & Excellence	782,396
Higher Education	210,740				
Adult, Career, & Vocational Education	271,478				
Science, Mathematics, & Environmental Education	298,924				
mean	128,430	mean	236,575	mean	296,088
median	99,033	median	102,588	median	214,795

Rankings by Alexa are based on page visits by Alexa users. With millions of users, Alexa claims to have the largest, most geographically and demographically diverse sample of overall web usage currently available. Organizations that do not have their own domain name are not ranked and are not shown in the table.

* ERIC/Early Childhood and ERIC/Information & Technology operate multiple websites with multiple domain names. Shown are just the rankings for the main clearinghouse website. More than half of AEL page visits are from the ERIC/Rural Clearinghouse.

Department of Education officials have consistently undervalued, neglected, and underfunded the ERIC program.

This is a bold statement. It reflects 19 years of personal observation. I preface my remarks with a recognition that senior Department of Education officials arrive with large agendas and limited time. ERIC is a program that appears to be working and not causing problems. Hence it is a program that doesn't require much attention. However, ERIC has suffered both from efforts to politicize it and from benign neglect.

One of the first OERI Assistant Secretaries formed an ERIC Recompetition Design Panel involving government and non-government representatives. Inserting politics rather than informed judgment, that Assistant Secretary then claimed that the panel advocated changes that were part of his agenda and that had nothing to do with the deliberations of the Design Panel. Historically, Assistant Secretaries and other senior U.S. Department of Education officers had so many misconceptions that the Director of the ERIC program authored a paper entitled "Myths and Realities about ERIC" (Stonehill, 1995). ERIC has received few invitations to participate in various OERI panels and advisory meetings. Until recently, the ERIC program office within OERI has been severely understaffed.

For the past 10 years, the federal government has spent approximately $9 million yearly on ERIC. The funding goes to pay for the clearinghouses, a central processing facility, GPO printing of *Resources in Education*, and ACCESS ERIC which serves as a contact point for the ERIC system and produces many reports previously produced by the central processing facility. Most users think we have a much bigger budget. During ERIC's lifetime, federal support for education nearly quadrupled (Hoffman, 1995). In constant dollars, funding for ERIC, however, is now less than one-half what it was 20 years ago. In the last ERIC recompetition, Clearinghouses were each level funded while required to provide support for AskERIC and to devote $30,000 toward web development.

Notably absent are funds for research and development. Until this year, the US Department of Education's Office for Educational Research and Improvement has spent zero dollars for study and systematic evaluation of its most visible project. In FY 2000, four papers were commissioned at $10,000 each. When one considers that ERIC has been level funded for 20 years and that virtually no money has been allocated for research and evaluation in support of the ERIC project, ERIC's accomplishments appear even more amazing. Credit goes to the ERIC Directors for being in tune with their content areas and to the ERIC program office for gently guiding ERIC without the benefit of hard data. However, the assumptions that have guided ERIC so well in the past, no longer hold. Information needs have changed dramatically and, more than ever, the ERIC program office needs to be guided by data rather than by intuition and to have the benefit of adequate resources to allocate.

ERIC has always taken pride in its ability to leverage resources. The ERIC Document Reproduction Service, which prepares microfiche of ERIC documents and

distributes paper and electronic copies on demand, is a no-cost-to-the-government contract. It is paid for by standing orders for ERIC microfiche, fees collected for on-demand papers and electronic copies, and more recently subscriptions to the on-line, on-demand file. Central processing and quality control for the *Current Index to Journals in Education* was handled by Oryx Press at no charge to the government in exchange for the right to print *CIJE*. The private sector disseminated the ERIC database by mounting it as part of electronic information services (e.g., Dialog, BRS) or CD-ROM. Again these activities occur at no cost to the government.

Consistent with this minimal funding level, the scope of work for the individual clearinghouses has changed little over the past 30 years. Clearinghouses are charged with

- Acquiring documents
- Selecting documents for the ERIC database
- Preparing citations (about 1500-3000 per clearinghouse each year)
- Preparing Digests (about 10 per clearinghouse each year)
- Preparing major publications (about 2 books per clearinghouse each year)
- Giving workshops (about 2 per clearinghouse each year)
- Responding to user questions

The Request for Proposals used to compete the ERIC Clearinghouses has not changed significantly in the past 20 years. In fact, the scopes of work for the individual clearinghouses have not changed. In the 1970s, career and adult education were hot topics. Approximately 12% of the documents put into the ERIC database during that time were put in by the ERIC Clearinghouse on Adult, Career, and Vocational Education. This was more than twice the average of the other clearinghouses. Despite today's interest in bilingual education, assessment, higher education, and reform, the ERIC Clearinghouse on Adult, Career, and Vocational Education continues to be contractually obligated to supply some 12% of the ERIC documents while the clearinghouses responsible for these other topics contribute at the same levels they did 25 years ago—an average of approximately 6.0% (See Table 2). The activities of the ERIC clearinghouses should be guided by the ebb and flow of contemporary issues, contributions to knowledge, and user demand. It should not be basically static for 30 years.

Table 2
Distribution of RIE entries by Clearinghouse
over time

	1976- 1980	1990- 1998	p- ratio
Elem Ed	4.2%	7.3%	1.73
Reading	7.2%	9.5%	1.32
Foreign Lang	4.5%	5.8%	1.28
Test Measure	5.0%	6.0%	1.20

Cmmnity Col	4.1%	4.7%	1.16
Disab/Gifted	6.2%	6.5%	1.05
Higher Ed	7.2%	7.5%	1.04
Inform Reso	7.1%	7.2%	1.02
Social Stud	4.9%	4.9%	1.01
Teacher Ed	5.4%	5.3%	0.97
Educ Manage	6.9%	6.7%	0.96
Career/Adult Ed	12.4%	11.4%	0.92
Counsel Guid	5.5%	4.7%	0.86
Rural Sch	4.1%	3.4%	0.84
Urban Sch	5.1%	4.2%	0.82
Science Math	5.9%	4.6%	0.79

p-ratios between .8 and 1.25 indicate that the percentages are practically equivalent.

A final example of ERIC's apparent failure to be appreciated within the Department of Education has to do with the creation of an Internet presence. When it became clear that educators at all levels were expecting to see Federally produced documents on the Internet, OERI provided supplemental funding to its Regional Labs to post their materials. The Labs responded with wonderful web pages, great collections of useful material. The ERIC Clearinghouses did not get any of this supplemental funding. ERIC's web presence is mostly the result of dedicated professionals staying up late at night. The irony is that the Labs and Centers receive a great deal of funding to disseminate their own research, yet, as shown in Table 1, ERIC web sites have been much more effective. As the *national education dissemination system* (Mathtech, 1998a), ERIC is responsible for disseminating all quality material related to education and, even without sufficient funds, has been far more successful in serving the education community. I argue later that ERIC cannot maintain that level of service any longer.

Part of the problem stems from the nature of the program. ERIC is best known for its archiving of educational materials. ERIC gathers the literature and prepares the microfiche. From one point of view, ERIC is a fairly uninteresting project. It doesn't provide research breakthroughs. It does not generate headlines. It does not provide political mileage. It is not known outside of education and information science. Further, it appears to do its job adequately at the current funding level.

What senior Department of Education officials apparently have not appreciated is that, to be a quality archive, ERIC had to be a quality information center. ERIC has established formal relationships with every major organization that produces and

consumes educational resources and information. To build these relationships, ERIC has to be an appreciated provider of information services.

ERIC's success is due largely to many marginal activities beyond ERIC's contracted scope

The success of ERIC is clearly not due solely to its efforts to gather papers and build a database. Rather, ERIC's success is due, to a great extent, to its value-added services. ERIC excels at identifying what will be helpful to its clients, identifying what is relevant and of high quality, and organizing and presenting information. In other words, ERIC is successful because it blends information science with subject matter expertise.

Some ERIC activities that are beyond the basic scope of clearinghouse work are:

- Mounting and maintaining the ERIC database on the web
- Most responses to Frequently Asked Questions
- Pathfinders
- Newsletters
- Journals (print and electronic)
- Newsletter and journal columns
- Workshops (beyond the first 2 each year)
- All printing activities
- All research activities
- Bookstores
- Major publications and books (beyond the first 2 each year)
- Development of lesson plans
- Compilations of reference materials
- Writing state-of-the-art search software for the web
- Test Locator
- Most web activities beyond simply establishing an Internet presence

The magnitude of these out-of-contract activities is evident in the wide range of on-line services offered at ERIC Clearinghouse websites, especially the more popular ERIC websites—those of the Reading, Information Resources, Assessment, Social Studies, Urban, and Disabilities/Gifted Clearinghouses. These are massive websites with many special features. However, they are marginal relative to what could be accomplished with a concerted, well-planned, and well-supported effort.

Lynch (2000) points out that ERIC needs to be concerned with database services in addition to database building. The Clearinghouses undertake these activities because this is what is necessary to be a viable clearinghouse. The time to create these products comes as volunteer time, either contributed by individuals or by their host institutions. Several ERIC Clearinghouses actually view the ERIC contract as a franchise license (Colker, 2000) and put a great deal of effort into selling and making money from books with the ERIC label. They then use this money to support the necessary Clearinghouse efforts not adequately funded by the government. Senior Department staff appear to be oblivious to these activities. They are paying primarily for the creation of the database; to them, everything else appears to be viewed as tangential. The Directors, however, view these activities as critical to clearinghouse success.

Information needs have changed

dramatically in the past few years

For thirty-five years, the ERIC database has been built around well-established information science principles. Abstracts are developed following a set of standards. Citations draw upon authority lists so publication types, journals, and organizations are always presented the same way. The *ERIC Thesaurus* is used to identify appropriate major and minor descriptors. The ERIC procedures manual takes more than a foot of shelf space. The quality of the ERIC database in terms of its structure is well appreciated in the information science community.

About 10 years ago, most ERIC searching was conducted by expert intermediaries. Reference librarians familiar with the ERIC database and trained in information retrieval would conduct searches rather than the end user. Once information needs were clearly identified, the intermediary would often present a highly relevant set of references. In my experience, I usually received 30 to 100 citations that were of potential interest. I would then spend hours in the library looking up and obtaining appropriate articles. The process would take weeks.

That type of searching has changed. Today the end user conducts his or her own search. When reference services are provided, the end user is often given 10 to 15 potentially relevant citations. End users today would like to obtain the most current information and they want it immediately. ERIC has responded by now offering the full-text of RIE documents since 1994, on-demand (For more information read about the E*subscribe program at www.edrs.com). Efforts are underway to make ERIC more timely.

To underscore that information needs have changed, let me ask a set of questions. *Which would you prefer to search?*

 a. National Academy of Science full-text of their books on-line
 b. OCLC First Search of full-text journals
 c. ERIC—Abstracts only

Twenty years ago, there were few options. Five years ago, ERIC was still basically the only education database. University Microfilms International (UMI) provided access to most of the journal articles in ERIC. The ERIC Document Reproduction Service provided access to the documents in RIE. Today, there are multiple education databases. For most people, the first preference will be high-quality materials they can get immediately. OCLC, EBSCOHost, JSTOR, CatchWord, the American Psychological Association and others are creating fee-based databases linked to the full text of peer-reviewed articles. ERIC's CIJE database has no such set of links, and UMI no longer provides reprint services. However, documents in ERIC's RIE database that were prepared in 1994 and later are now available on-demand, on-line. Should ERIC continue to abstract journal articles if it can't make them readily available?

Which would you prefer?

 a. Packages with an Introduction to an issue and carefully selected full-text resources
 b. An annotated bibliography
 c. Search for yourself

Obtaining an answer to an education question is often not a trivial task. The literature is full of high- and low-quality articles; it is often difficult to identify potentially relevant articles, yet alone key articles. Ten years ago, there were few

information analysis packages, and those that existed were often difficult to find. A lengthy annotated bibliography was considered a great starting tool. Today, there is a growing number of expertly prepared responses to Frequently Asked Questions. These make excellent starting points when one is interested in search a topic. Today, any FAQ is a blessing. In five years, however, the demand will be for *quality* FAQs. In a watch-dog role, the researchers in the content area will want to be sure novices are led to the best resources. Novices will want the best resources. Quality FAQs, with expert introductions to each topic's special problems and key references identified, require reference librarians working in conjunction with subject experts, as well as peer review and periodic updating. Today's ERIC can develop some FAQs, but not enough, not at the quality ERIC is capable of, and not with the ongoing maintenance FAQs require.

You need to make a policy decision, which do you prefer?

    a. Carefully edited briefing papers presenting all sides of an issue
    b. A selected collection of abstracts that summarize papers
    c. Large collection of abstracts that summarize papers
    d. Short abstracts that indicate without summarizing.

      This question illustrates several points. First, a search of the ERIC database may be the end product desired of researchers, but it is generally a long way from the information desired by policymakers. Researchers may be willing to wade through indicative abstracts. Unless the policymaker has the luxury of time and is a researcher, the policy maker would prefer informative abstracts that summarize a paper. Ten years ago, the policymaker would have been happy with a large collection of informative abstracts, or better yet, a carefully selected collection.
      Today, when information is required, the need is for greater depth and for immediate answers or at least viewpoints. ERIC's Digest Series fill that role nicely. Some 80,000 digests are distributed each month by www.ed.gov and ericae.net. But, will Digests be adequate, yet alone optimal, five years from now? I don't think so. The clearinghouses are told to budget approximately $1,200 for each Digest title. This amount does not provide the resources for an analysis of policy decisions, for the commissioning of papers, or even for assuring that the Digests are of the highest possible quality. While the education community has been very supportive of the ERIC Digest series and most expert authors are willing to volunteer to write Digests, something that is designed to introduce topics and possibly help guide decision making, should not be funded at the lowest possible level.

Which do you prefer to help you search for resources?

    a. An expert in your field who is also an expert reference librarian
    b. Expert librarian to search for you
    c. A graduate student to search for you
    d. Search for yourself

      Ten years ago, one often used an expert librarian to help locate resources. There was often some tension as the expert librarian often did not have the subject-matter expertise. With the growth of on-line services, such as Dialog and the Internet, many have searched for themselves and have become frustrated (Rudner, 2000). The Clearinghouses now provide on-line reference services in response to those needs. In theory, we have subject-matter experts within the ERIC system and they respond with a

set of relevant ERIC and Internet resources. In many ways, this has been a major success. Most patrons have been delighted with the service. However, ERIC cannot provide reference services as it does for the next five years. The clearinghouses are told to budget approximately $10.00 to respond to questions and it typically takes 30 to 45 minutes to provide a response. At this rate, most questions are answered by junior staff and graduate students. At that funding level, we cannot provide the quality and systematic evaluation that we would like and patrons should receive. The problem will get worse as the number of questions are increasing rapidly each year and the current ERIC contracts only allows for minor increments.

You are a researcher or practitioner, which do you prefer?

a. Search a carefully constructed pathfinder of the best resources
b. Search the entire Internet by yourself

Of course, ten years ago, the Internet was not an option. Perhaps last year, many were content to search the Internet themselves. But the Internet has become massive and overwhelming. Using the major search engines often yields many irrelevant links. Typically, the user enters a word or two and the engines provide a crude ranking and relevancy match based on all the text appearing on each web page. Improvements in this area will be marginal at best. An alternative is a carefully constructed pathfinder that identifies, organizes and annotates resources within a given field. The Argus Corporation (www.clearinghouse.net) maintains an impressive list of such pathfinders. Many ERIC Clearinghouses have developed such tools and they are well-received. But, pathfinders must be maintained. URLs change; new resources become available; the pathfinder categories need to evolve; and resources should be continuously evaluated. Five years from now, the Clearinghouses will not be able to maintain their pathfinders as volunteer activities given increasing demand and the sheer growth in the knowledge base.

The ERIC database itself needs to be examined and probably redesigned

The ERIC system has always sought to be a comprehensive database by including virtually everything that has been written about education. The idea was that if the database is comprehensive, then with the right search strategy, a person could find everything that is important to them. With constant level funding, however, the reality is that ERIC is no longer comprehensive. Several education-related journals are not routinely put into the database. Acquisition of conference papers is often not aggressive. Many high quality, state and federal reports do not get into the database.

There is a real question whether the mix of documents being put into the ERIC database is optimal. To address this question, I looked at the demand and supply of ERIC citations. On the demand side, I analyzed characteristics of two datasets: 1) 56,073 ERIC citations retrieved by web patrons of the ERIC Clearinghouse on Assessment and Evaluation during three days in September 1999, and 2) all 35,433 documents ordered from the ERIC Document Reproduction Service in 1999. I looked at the target audience, publication type, clearinghouse codes, descriptors and publication years within each of the ERIC citations. I evaluated demand in terms of the absolute number and percent of retrieved citations with the addressed characteristics. I evaluated supply using the percent

of documents in the ERIC database from 1985 with the addressed characteristics. Supply for the first data set included both CIJE and RIE documents; for the second data set, just RIE documents.

A major problem with retrieval percentage as a demand indicator is that it is heavily influenced by supply. If nearly all the documents in the database were of a certain type, for example, then we would expect nearly all the retrieved documents to be of that type. To gauge the relationship of demand and supply, I computed a probability ratio by dividing the percent of retrieved documents with the addressed characteristic by the percent of documents in the ERIC database with that characteristic. A ratio of 1.0 would indicate that supply exactly equals demand. A ratio greater than 1.25 is accepted as indicating that there is greater demand than supply. A ratio less than .80 indicates that the supply is greater than demand. Because the sample sizes are so big, all ratios are significantly different from 1.000. One should concentrate on practical significance. Table 3 shows supply and demand by target audience; Table 4 shows supply and demand by publication type.

This evaluation of supply and demand is in terms of quantity, not quality. While there may not be many documents of a certain type in the database, the few that are in the database may address the patron questions and completely meet the demand. Further, low demand does not necessarily indicate that a document type should not be sought. Demand may be low because patrons don't know that a certain type of document may be in the database. Other documents should be archived, such as publications from the National Center for Educational Statistics, and hence belong in the database even if they are in low demand. Nevertheless, ERIC acquisitions needs to be rethought.

Table 3
Supply and Demand of ERIC
Citations by Target Audience

	On-line citations			Reproduced documents		
	Demand	Supply	Ratio	Demand	Supply	Ratio
Community	0.7%	0.5%	1.49	1.6%	0.7%	2.43
Practitioners	50.2%	18.3%	2.75	43.2%	18.9%	2.29
Counselors	0.3%	0.4%	0.91	0.8%	0.5%	1.56
Parents	1.3%	0.7%	1.79	2.5%	1.6%	1.54
Support Staff	0.1%	0.1%	0.41	0.1%	0.1%	1.21
Administrators	3.2%	3.8%	0.84	4.4%	3.9%	1.13
Researchers	2.5%	5.1%	0.49	2.2%	2.1%	1.07
Students	1.3%	1.6%	0.81	2.9%	2.7%	1.06
Teachers	14.6%	9.9%	1.48	11.0%	11.4%	0.97
Policymakers	2.3%	2.8%	0.83	3.0%	3.3%	0.92

p-ratios between .8 and 1.25 indicate that the percentages are practically equivalent.

Table 4
Supply and Demand of ERIC
Citations and Documents by Publication Type

	On-line citations			Reproduced documents		
	Demand	Supply	Ratio	Demand	Supply	Ratio
ERIC Product	0.9%	0.9%	1.03	3.8%	2.3%	1.68
Thesis	0.6%	0.3%	2.27	1.4%	0.8%	1.65
Review Literature	9.5%	7.5%	1.26	10.5%	6.4%	1.64
Dissertation	0.4%	0.3%	1.29	0.9%	0.6%	1.42
Research Report	31.4%	30.6%	1.02	30.7%	25.9%	1.19
Conference Paper	9.5%	12.6%	0.76	31.7%	28.5%	1.11
Practicum Paper	0.5%	0.4%	1.50	1.3%	1.2%	1.09
Position Paper	14.4%	19.1%	0.75	9.5%	9.7%	0.98
Test, Questionnaire	2.1%	2.7%	0.75	6.0%	6.4%	0.93
Evaluative Report	11.4%	8.6%	1.33	10.0%	11.5%	0.87
Project Description	18.7%	20.9%	0.90	13.3%	16.8%	0.79
Bibliography	1.2%	1.7%	0.69	1.7%	2.2%	0.76
Non-clssrm Material	9.2%	7.5%	1.22	8.5%	11.3%	0.75
General Report	1.1%	2.3%	0.48	0.8%	1.1%	0.70
Teaching Guide	8.9%	9.2%	0.97	5.8%	8.7%	0.67
Confer. Proceedings	0.6%	1.1%	0.52	1.3%	2.2%	0.59
Historical Material	0.5%	1.2%	0.38	0.5%	1.0%	0.53
Directory	0.3%	0.6%	0.51	0.6%	1.2%	0.50
General Reference	0.1%	0.2%	0.65	0.1%	0.3%	0.47
Legal Material	0.6%	1.3%	0.45	0.7%	1.7%	0.40
Statistical Material	1.0%	2.2%	0.47	1.8%	4.6%	0.40

Instructional Material	0.5%	1.5%	0.36	0.8%	2.1%	0.39
Book	4.2%	2.1%	2.05	1.7%	8.0%	0.21
Audiovisual Material	0.1%	0.1%	0.53	0.0%	0.3%	0.09

p-ratios between .8 and 1.25 indicate that the percentages are practically equivalent.

Based on this analysis, the most popular types of documents are those flagged as written for practitioners and teachers; demand for these types of documents exceeds the supply in the database. Documents written expressly for researchers are also in demand; however, there appears to be an adequate supply of such documents. There is very little demand, however, for historical materials, directories, general reference material, legal material, and audio-visual material. Of special interest is that there is very little demand for instructional material. Right now, patrons do not come to ERIC in search of materials to use in their classroom. Yet, a significant portion of documents are selected for inclusion in the database on the grounds that a teacher may find the materials useful. The data suggest that either ERIC markets the availability of these types of documents or puts much less effort into their acquisition.

Another read of these data is that demand exceeds supply for comprehensive materials such as literature reviews, books, theses and dissertations as well as evaluative materials. One reviewer pointed out that ERIC needs a better policy with regard to books. One one hand, there are databases for books and one could flood the database with textbooks. On the other hand, books providing insights into policy issues and books summarizing scholarly research are sorely needed and are not adequately being identified by ERIC.

I noted earlier that the scopes of work for the ERIC Clearinghouses have not changed significantly in the past 25 years. As shown in Table 5, this lack of change may be becoming problematic. Five clearinghouses are putting in significantly more documents than people seem to be demanding. Further, these clearinghouses supply about one-third of the documents in the ERIC database yet account for only one-fifth of the demand. This is not to say that the mix of documents in the ERIC database should be determined by demand, but rather the mix of clearinghouse activities needs to be periodically re-examined.

The ERIC database is composed of a documents database, *RIE*, and a journal article database, *CIJE*. While the documents in *RIE* are not peer reviewed, the *RIE* database has many advantages. It serves as a pre-print service for many papers originally presented at conferences. It serves as an archive for on-line journals, such as *Education Policy Analysis Archives*. And it contains state and federally produced reports. Most importantly, ERIC can make most of these documents available, either though the microfiche collection, or on-line for documents submitted after 1994. Thus, people can search the *RIE* database and usually obtain the documents.

The same is not true for *CIJE*. Patrons finding articles in *CIJE* need to go to an academic library, or if it is in one of a limited number of journals, order the document through a reprint service. Thus, *CIJE* presents additional work for the patron and there are alternatives. As mentioned earlier, OCLC, EBSCO, and the American Psychological Association provide on-line access to a growing number of journal articles. H.R. Wilson's Education Abstracts database covers many of the journals covered by *CIJE*. Perhaps,

ERIC should drop *CIJE* in light of these other databases or perhaps index only those journals it can archive in *RIE*.

Table 5
Supply and Demand of ERIC
Citations and Documents by Clearinghouse

	On-line citations			Reproduced documents		
	Demand	Supply	Ratio	Demand	Supply	Ratio
Ed Manage	9.6%	6.4%	1.52	9.2%	6.7%	1.38
Teacher Ed	7.7%	5.0%	1.53	6.5%	5.3%	1.24
Disab/Gifted	16.3%	8.2%	1.99	7.5%	6.5%	1.16
Early Child	9.6%	5.6%	1.71	7.9%	7.3%	1.09
Reading	9.4%	8.2%	1.15	10.3%	9.5%	1.08
Assessment	4.8%	4.6%	1.04	6.4%	6.0%	1.07
Commn Col	1.7%	2.8%	0.59	4.7%	4.7%	1.00
Urban	4.4%	4.0%	1.10	4.1%	4.2%	0.98
Counsel	6.1%	6.4%	0.96	4.6%	4.7%	0.97
Foreign Lang	3.2%	5.0%	0.65	5.2%	5.8%	0.89
Rural	3.6%	3.0%	1.18	2.9%	3.4%	0.87
Sci Math	5.7%	7.5%	0.76	3.2%	4.6%	0.70
Higher Ed	3.8%	7.4%	0.51	5.2%	7.5%	0.69
Info Resou	4.9%	8.0%	0.61	4.9%	7.2%	0.68
Career/Adult Ed	5.1%	10.0%	0.51	6.4%	11.4%	0.56
Soc Stud	4.0%	6.1%	0.65	2.8%	4.9%	0.56

p-ratios between .8 and 1.25 indicate that the percentages are practically equivalent.

Summary and Conclusions

ERIC's value lies is its ability to make educational information relevant to a wide

range of consumers. ERIC does this by identifying resources, organizing information, applying information science, using literature, synthesizing information, developing new information tools, and developing special information products. While building the database has been its central activity, the most visible and useful ERIC accomplishments are not part of the core ERIC contract. They do, however, stem from the database and the process of building the database.

I have argued that ERIC will not be able to provide its current level of services much longer because demand is outpacing institutional and personal capacity. If ERIC maintains the low levels of service the government currently funds, without any effort to redirect and expand resources to meet demonstrated need, the education community will lose. ERIC is the information infrastructure for American education. While operating at a fraction of its capacity, it has effectively provided access to the wide range of information and information services produced across the country. The need to build this education information infrastructure is increasing. Perhaps more than ever, the education community needs to use information to inform decision-making at all levels. The daily instructional activities of America's 3,000,000 elementary and secondary school teachers should be guided by sound educational practices. Administrators and policymakers should benefit from the management decisions made by their colleagues. Research is a cumulative science and should be built on the methods and findings of other researchers with built-in mechanisms for dissemination and feedback from practitioners.

The need to build and maintain the education information infrastructure exists and the responsibility falls squarely on the U.S. Department of Education. Historically, there have been two criteria in determining the appropriateness of government interventions (programs):

1. limit the intervention of all governments to undertaking only those activities whose purposes are unattainable in the desired amount or quality through private action and where the public benefits equal or exceed the public costs of production
2. remand the public intervention to the lowest level (local, state, federal, or some combination) where the function can be effectively performed Mathtech (1998b).

By these criteria, providing information to the education community is clearly an appropriate federal role. Federal involvement in this area prevents needless duplication of effort, can assure better quality, can assure a range of products, and is cost effective.

ERIC could be doing a great deal more in its quest to provide information to the education community. I have mentioned several things ERIC is not doing:

- systematically gathering and analyzing patron satisfaction information
- systematically analyzing queries and search strategies to identify user community training needs and topics of interest
- designing benchmarks and systematically evaluating and improving the quality of reference services
- producing management resources to be shared across the 16 clearinghouses
- gathering and analyzing high-quality usage statistics
- vigorously pursuing acquisitions
- vigorously acquiring and cataloging web resources
- providing access to the journal literature
- marketing and disseminating itself to a broader audience
- preparing articles about the project

I have also mentioned some things ERIC is doing, but should do more of:

- developing a wide range of content-oriented training material
- disseminating information about itself
- establishing on-line electronic journals
- creating access to full-text documents
- posting quality materials on the Internet as they are acquired
- providing more syntheses and information products

ERIC has amply demonstrated the need to infuse information science in the various educational subject matter disciplines, and its ability to do so. ERIC needs to expand if it to institutionalize its current level of service and respond well to information requests of the 21st century. Properly funding the volunteer activities will allow for more concentrated effort and inevitably higher quality and usability. Just as educational practice and advances should be based on research, ERIC also needs a program of research into ways of being more responsive to user needs.

The ERIC of today is confronted with a vastly different user base, mode of access, mix of services and set of demands. No, ERIC is not ready for this new environment. It has the ability, but not the resources and not the guidance. In my view, this will hurt not only the research community, but more importantly, teachers and practitioners who have neither the time, desire or ability to sift through today's overwhelming volumes of potential resources.

Notes

1. . Based on a paper presented at the Annual Meeting of the American Educational Research Association, New Orleans, LA April 24-28, 2000.
2. This study did NOT receive any funding from the U.S. Department of Education.

Endorsements

The Directors of the following ERIC Clearinghouses have indicated that they concur with most, but not necessarily all, of the points raised in this article:

- ERIC Clearinghouse on Higher Education,
- ERIC Clearinghouse on Counseling and Student Services,
- ERIC Clearinghouse on Educational Management,
- ERIC Clearinghouse on Elementary and Early Childhood Education,
- ERIC Clearinghouse on Languages and Linguistics,
- ERIC Clearinghouse on Urban Education,
- ERIC Clearinghouse on Reading, English and Communication,
- ERIC Clearinghouse on Disabilities and Gifted Education,
- ERIC Clearinghouse on Information and Technology,
- ERIC Clearinghouse on Social Studies/Social Science Education,
- ERIC Clearinghouse on Community Colleges, and
- ERIC Clearinghouse on Rural Education and Small Schools,
- and I am the Director of the ERIC Clearinghouse on Assessment and Evaluation.

References

Colker, Laura J. (2000). *Reminiscences from the Field: The Continuing Story of ERIC*. Springfield, VA: Dyntel Corporation.

Eisenberg, Mike; Henson, Jane; Howley, Craig; Cawley, Nancy; Ramirez, Bruce; Rothenberg, Dianne (1997). Rising Expectations: A Framework for ERIC's Future in the National Library of Education. Report of the ERIC Operations Framework Task Force. (ERIC Document Reproduction Service No. ED410969)

ERIC Annual Report 1999. Available. Online:
http://www.accesseric.org/resources/annual99/index.html

Hoffman, Charlene M (1995). Federal Support for Education. Fiscal Years 1980 to 1995. Washington, DC: National Center for Educational Statistics. (ERIC Document Reproduction Service No. ED392853).

Lynch, Clifford A. (2000). Technology and the ERIC System: New Opportunities and New Impacts. Discussion Draft for March 8, 2000 ERIC Director's Meeting.

Mathtech (1998a). Shaping the Future of Educational Research, Development, and Communication. OERI Reauthorization Working Papers Prepared for the National Educational Research Policy and Priorities Board (ERIC Document Reproduction Service No. ED428105).

Mathtech (1998b). A Review of the Federal Role and the Department of Education Structure. OERI Reauthorization Working Papers Prepared for the National Educational Research Policy and Priorities Board (ERIC Document Reproduction Service No. ED428105).

Rudner, Lawrence M. (1997). ERIC and NLE: Past, Present, and Future. Paper prepared for the National Educational Research Policy and Priorities Board. May 30, 1997.

Rudner, Lawrence M. (2000). Who Is Going to Mine Digital Library Resources? And How? *D-Lib Magazine*, 6(5) May 2000. On-line:
http://www.dlib.org/dlib/may00/rudner/05rudner.html.

Stalford, Charles B.; Stern, Joyce D. (1990). Major Results of a Survey on the Use of Educational R&D Resources by School Districts. Paper presented at the Annual Meeting of the American Educational Research Association (Boston, MA, April 16-20, 1990). (ERIC Document Reproduction Service No. ED329212).

Stonehill, Robert M. 1992. "Myths and Realities About ERIC." ERIC Digest. Washington, DC: Office of Educational Research and Improvement, National Center for Education Statistics. (ERIC Document Reproduction Service No. ED345756).

Trester, Delmer J. (1981). *ERIC: The First Fifteen Years: 1964-1979.* Columbus, OH: SMEAC Information Reference Center.

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