Library Metrics in a Changing Environment

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Association of Research Libraries   **www.arl.org**

Forces and Challenges

- Increasing demand for libraries to demonstrate outcomes/impacts in areas of importance to institution
- Increasing pressure to maximize use of resources through benchmarking resulting in:
  - Cost savings
 - Reallocation

The Imperative for our Research

"In an age of accountability, there is a pressing need for an effective and practical process to evaluate and compare research libraries. In the aggregate, among the 124 Association of Research Libraries (ARL) alone, over $3.2 billion dollars were expended in 2000/2001 to satisfy the library and information needs of the research constituencies in North America."

Note. M. Kyrillidou and M. Young. (2002). ARL Statistics 2000-01. Washington, D.C.: ARL, p.5.
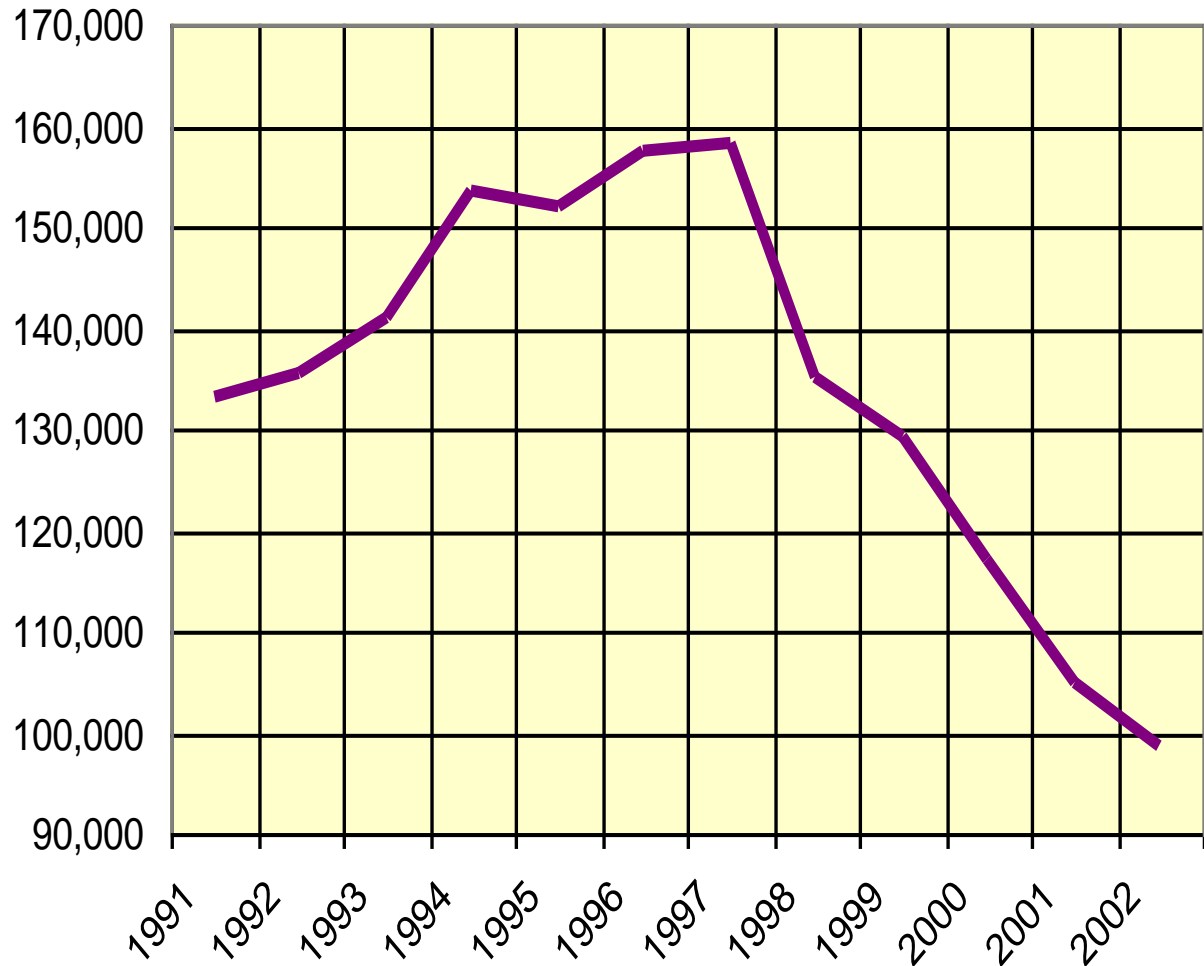
Total Circulation

Note. M. Kyrillidou
and M. Young.
(2002).
ARL Statistics 2000-
01. Washington,
D.C.: ARL, p.7.

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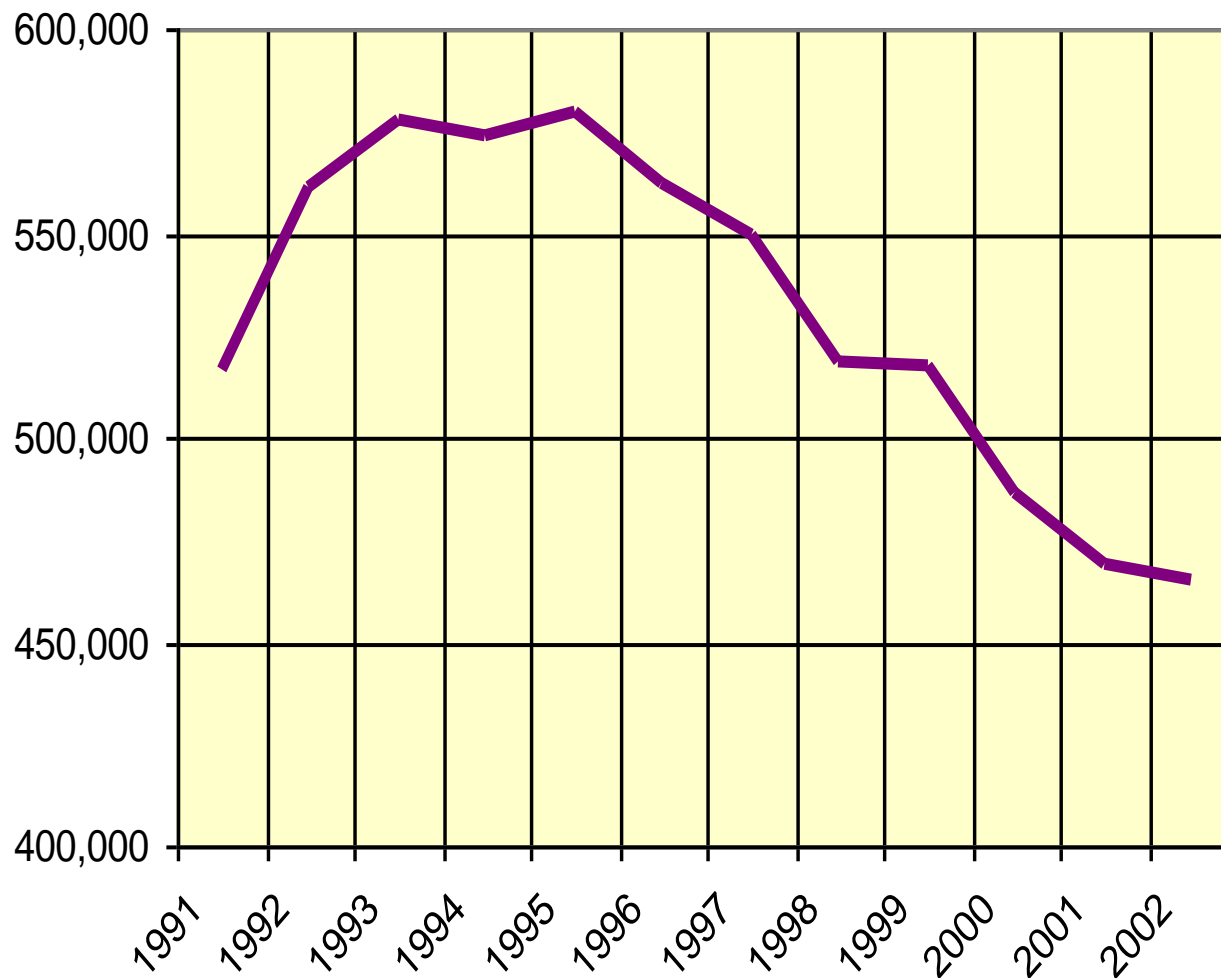
Reference Transactions

Note. M. Kyrillidou and M. Young. (2002). **ARL Statistics 2000-01. Washington, D.C.: ARL, p.7.**

ARL New Measures Initiative

- Collaboration among member leaders with strong interests
- Specific projects developed with different models for exploration
- Projects self-funded by interested members
- Intent to make resulting tools and methodologies available to full membership and wider community

ARL New Measures Projects

- Project to define usage measures for electronic information resources (E-metrics/COUNTER Online Metrics)
- NSF NSDL grant to identify the dimensions of digital library service quality (e-QUAL or "digiqual")
- Survey on User Demographics and Purpose of Use for Electronic Resources (Project MINES)
- Measuring Library Service Quality (LibQUAL+™)
- Identification of measures that demonstrate a library's contribution to student learning outcomes
- Investigation of role libraries play in support of the research process
- Development of tools to address cost effectiveness of library operations (staff allocation, ILL/DD study)
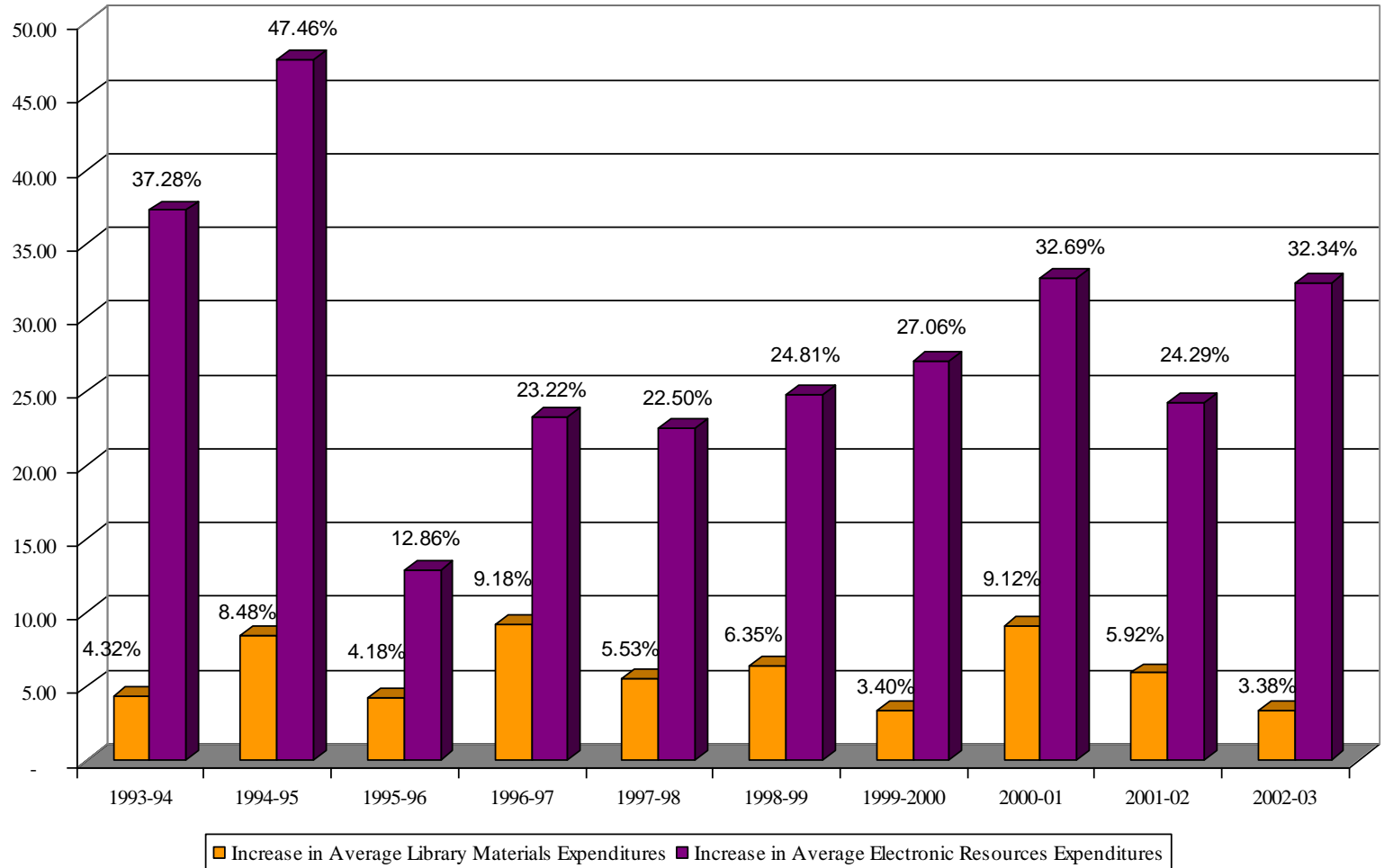
2002-03 ARL Data

- **Expenditures for electronic resources account for 25%, on average, of ARL institutions' library materials budgets.**
- **ARL libraries reported spending more than $228 million on electronic resources.**
- **ARL libraries reported a total of $21,470,716 in additional funds spent on their behalf through a centrally funded consortium for purchasing electronic products and services.**
- **Expenditures for electronic serials have increased by 171% since the 1999-2000 survey, and by more than 1800% since they were first reported, in 1994-95 (see graph, below).**

Source: Mark Young and Martha Kyrillidou, ARL Supplementatry Statistics 2002-03 (Washington, DC: Association of Research Libraries, 2004)

Yearly Increases in Average Electronic Resources and Total Library Materials Expenditures

Year	Increase in Average Library Materials Expenditures	Increase in Average Electronic Resources Expenditures
1993-94	4.32%	37.28%
1994-95	8.48%	47.46%
1995-96	4.18%	12.86%
1996-97	9.18%	23.22%
1997-98	5.53%	22.50%
1998-99	6.35%	24.81%
1999-2000	3.40%	27.06%
2000-01	9.12%	32.69%
2001-02	5.92%	24.29%
2002-03	3.38%	32.34%

■ Increase in Average Library Materials Expenditures   ■ Increase in Average Electronic Resources Expenditures

Mark Young and Martha Kyrillidou, *ARL Supplementary Statistics 2002-03*
(Washington, DC: Association of Research Libraries, 2004)

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Total Electronic Serials Expenditures, 1995-2003
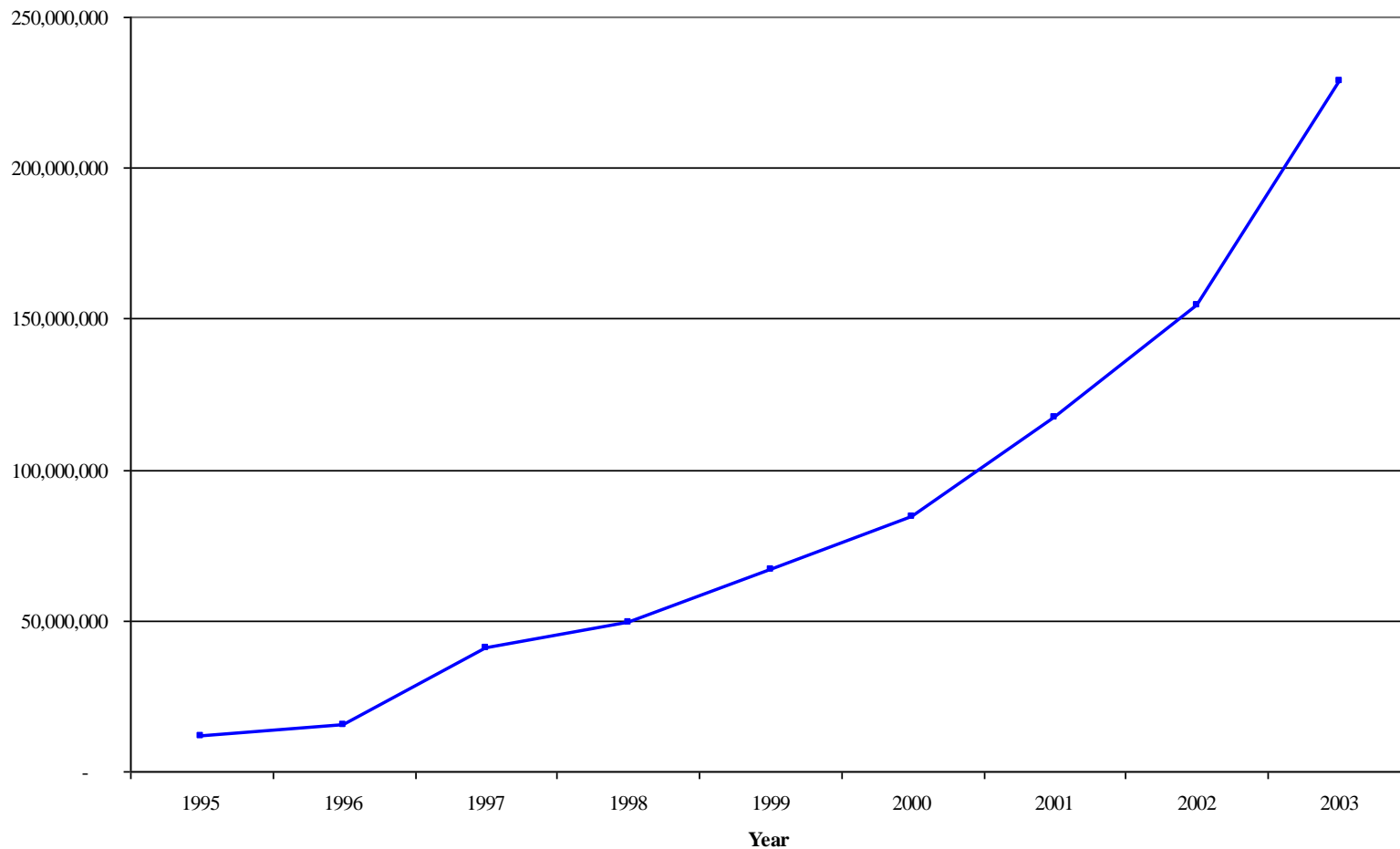
Mark Young and Martha Kyrillidou, *ARL Supplementary Statistics 2002-03*
(Washington, DC: Association of Research Libraries, 2004)

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Need for Networked Data & Statistics

Funding

Financial Support

- – To justify - make a case for continued current support for digital collections

- – To make a case for additional support for technology & infrastructure

Need for Networked Data & Statistics

Infrastructure

Better Internal Processes

- To measure & track changes in internal processes

- To enable better decision-making in allocating & prioritizing resources & needs

- To enable assessment of service quality in a networked environment

Need for Networked Data & Statistics

For Comparisons

Institutional Comparisons

- – For benchmarking digital services
- – To enable competition for resources with other departments on campus

Need for Networked Data & Statistics

Vendor Negotiation

- Need for accurate reporting of network use
- Need for accurate estimates of per client use
- Ability to compare overlapping coverage
- Need the ability to pressure vendors to price according to the library's real need

ARL E-Metrics Project

Three phases:

- Initial Phase (May-October 2000): **What do we know?** Inventory of current practices at ARL libraries as to statistics, measures, processes, and activities that pertain to networked resources and services.

- Second Phase (November 2000-June 2001): **What can we collect?** Identified and field tested an initial draft set of statistics and measures

- Final phase (July 2001-December 2001): **What difference does this make?** Build linkages to: educational outcomes/impact, research, technical infrastructure

ARL E-Metrics Project

Number of libraries collecting e-metrics data elements increased over a period of three years:

- 25 libraries in 2002

- 35 libraries in 2003

- 50 libraries in 2004

- Data elements will be part of the annual ARL Supplementary Survey in 2003-04

Data Elements: Patron Accessible Electronic Resources

- R1 – Number of electronic full-text journals

- R2 – Number of electronic reference sources

- R3 – Number of electronic books

Data Elements: Use of Networked Resources & Related Infrastructure

- U1 – Number of electronic reference transactions
- U2 – Number of logins (sessions) to electronic databases
- U3 – Number of queries (searches) in electronic databases
- U4 – Items requested in electronic databases
- U5 – Virtual visits to library's website and catalog

Data Elements: Expenditures for Networked Resources & Related Infrastructure

- C1 – Cost of electronic full-text journals
- C2 – Cost of electronic reference sources
- C3 – Cost of electronic books
- C4 – Library expenditures for bibliographic utilities, networks & consortia
- C5 – External expenditures for bibliographic utilities, networks & consortia

Data Elements:
Library Digitization Activities

- D1 – Size of library digital collection
- D2 – Use of library digital collection
- D3 – Cost of digital collection construction & management

(Collecting these data requires staff familiar with the digital environment.)

E-Metrics Next Steps

- Continued work with vendors through international Project COUNTER

- Continued work with national and international standards activities

- Workshops and training to develop necessary data analysis skills

COUNTER Online Metrics

ARL was a founding members of COUNTER and COUNTER goals include:

- developing, reviewing, disseminating and gaining support for an internationally agreed Code of Practice governing the recording and exchange of online usage data and other appropriate Codes of Practice relating to online publications;

- developing an organisational framework for implementation of and compliance with such Codes of Practice;

- contributing to the public, commercial and professional understanding of online information use.

LibQUAL+™ Project

	PURPOSE	DATA	ANALYSIS	PRODUCT/RESULT
Emergent 2000 QUAL	Describe library environment; build theory of library service quality from user perspective	Unstructured interviews at 8 ARL institutions	Content analysis: (cards & Atlas TI)	Case studies[1]
QUAN	Test LibQUAL+™ instrument	Web-delivered survey	Reliability/validity analyses: Cronbachs Alpha, factor analysis, SEM, descriptive statistics	Valid LibQUAL+™ protocol Scalable process Enhanced understanding of user-centered views of service quality in the library environment[2]
QUAL	Refine theory of service quality	Unstructured interviews at Health Sciences and the Smithsonian libraries	Content analysis	Cultural perspective[3]
QUAL	Refine LibQUAL+™ instrument	E-mail to survey administrators	Content analysis	Refined survey delivery process and theory of service quality[4]
QUAN	Test LibQUAL+™ instrument	Web-delivered survey	Reliability/validity analyses including Cronbachs Alpha, factor analysis, SEM, descriptive statistics	Refined LibQUAL+™ instrument[5]
QUAL	Refine theory	Focus groups	Content analysis	Local contextual understanding of LibQUAL+™ survey responses[6]

Iterative 2004

Vignette Re-tooling

LibQUAL+™ Brief History

- Experience with SERVQUAL in many libraries over the last 10 years
- Texas A&M SERVQUAL assessment
- Meeting of interested ARL libraries (ALA Midwinter 2000)
- Pilot with 12 ARL libraries (spring 2000) – 5,000 responses
- External funding through FIPSE, U.S. Department of Education (September 2000)
- 43 libraries participated spring 2001 – 20,000 responses
- 164 libraries participated spring 2002 – 78,000+ responses
- 308 libraries participated spring 2003 – 125,000+ responses
- 208 libraries participating spring 2004 – 110,000+ responses
- Consortial and related associations interest
- International interest
- NSF NSDL funding to develop an understanding of service quality in the digital library environment (e-QUAL or 'digiqual')
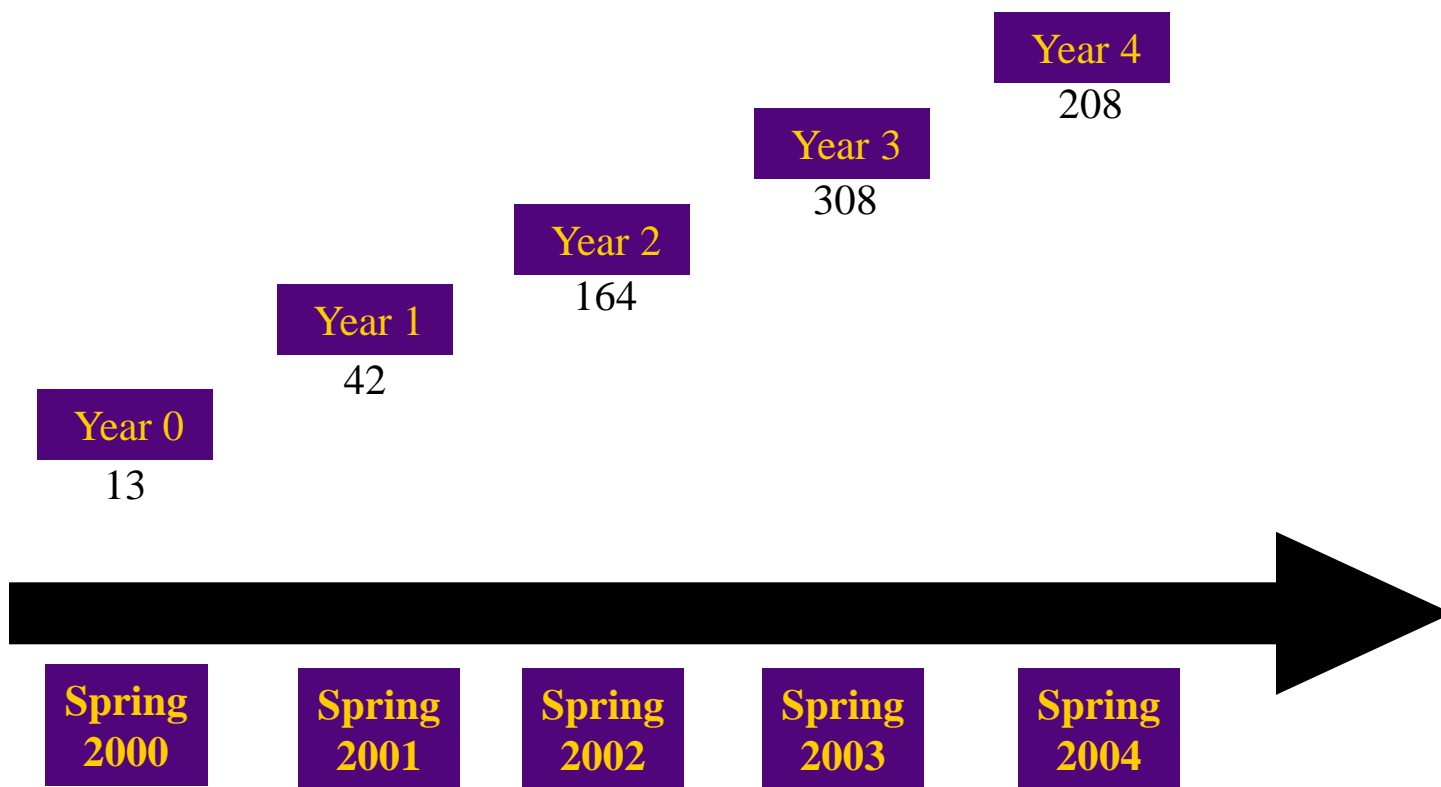
Dimensions

2000	2001	2002	2003
41-items	**56-items**	**25-items**	**22-items**
Affect of Service	Affect of Service	Service Affect	Service Affect
Reliability	Library as Place	Library as Place	Library as Place
Library as Place	Reliability	Personal Control	Information Control
Provision of Physical Collections	Self-Reliance	Information Access	
Access to Information	Access to Information		

LibQUAL+™ Participants

Year 4
208

Year 3
308

Year 2
164

Year 1
42

Year 0
13

Spring 2000

Spring 2001

Spring 2002

Spring 2003

Spring 2004

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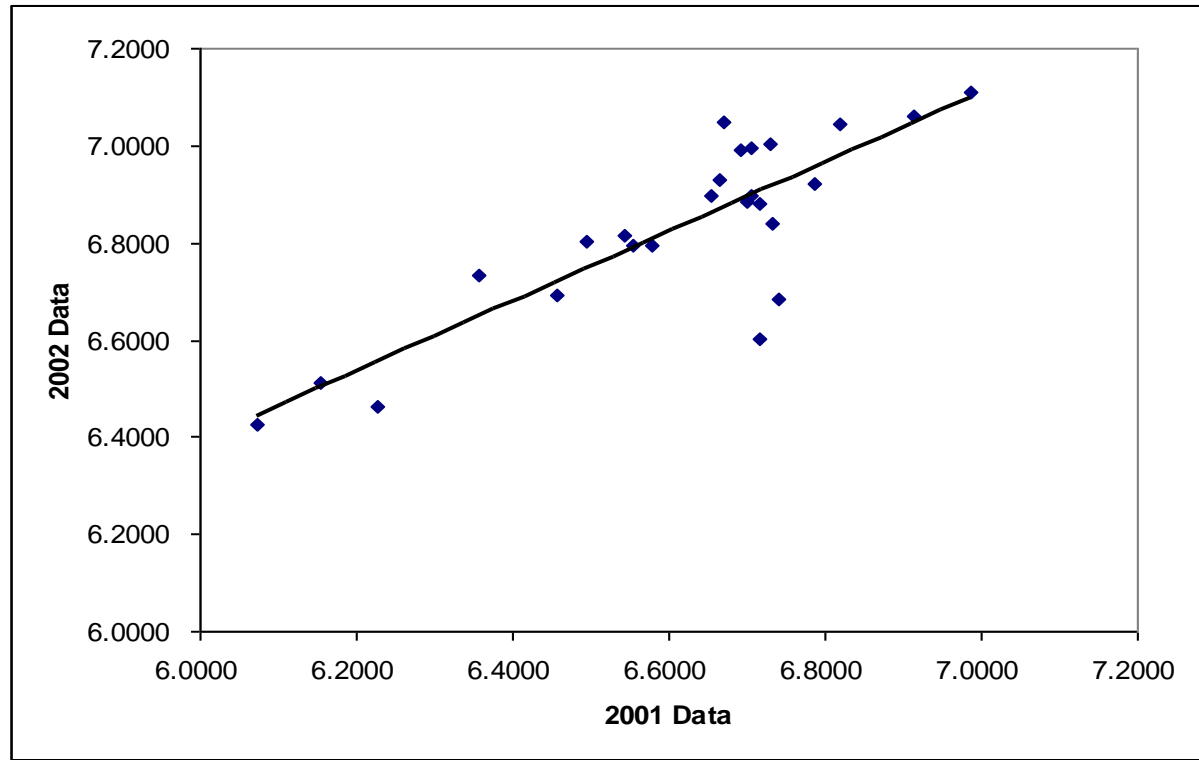
Mean Perceived Scores 2001/2002 Trend (n=34)

Contributions of LibQUAL+™

- Web-based instrument makes little demand of local resources while compiling robust dataset

- Grounded questions yield data of sufficient granularity to be of local use

- Normative data across cohort groups

- Surfaces "Best Practices"

Library Values

Library values are reflected in:

- physical environment (*Library as Space*)

- warmth, empathy, reliability and assurance of library staff (*Affect of Service*)

- ability to control the information universe in an efficient way (*Information Control*)

and are unifying and powerful forces for:

- Overcoming language and cultural barriers

- Bridging the worlds of our users

- Improving library services

- Advancing the betterment of individuals and societies

LibQUAL+™ Related Documents

- LibQUAL+™ Web Site

  http://www.libqual.org

- LibQUAL+™ Bibliography

  http://www.libqual.org/publications/index.cfm

- Survey Participants Procedures Manual

  http://www.arl.org/libqual/procedure/lqmanual2.pdf

Developing measures and evaluation techniques for networked services will take time, effort, and on-going learning on everyone's part – but we must begin now.

(Carla Stoffle, University of Arizona)

We not only need to measure things in new ways but we also need to measure new things.

(Sherrie Schmidt, Arizona State University)