# Scientifically-Based Research on the Impact of School Libraries on Academic Achievement

What Is It? How Much of It Do We Have? How Can We Do It Better?

Keith Curry Lance, Ph.D.

Director, Library Research Service

Colorado State Library & University of Denver

# What Is SBR?

- **U.S. Dept. of Education (No Child Left Behind)**
  - Rigorous, systematic & objective procedures to obtain reliable & valid knowledge
    - Empirical methods
    - Rigorous data analyses
    - Measurements or observational methods
    - Experimental or quasi-experimental designs
    - Replication & generalization
    - Accepted by independent sources

# What Is SBR?

- **National Research Council (Scientific Research in Education, 2002)**
  - ☐ Clear set of questions
  - ☐ Methods appropriate to answer questions & rule out competing answers
  - ☐ Accounting for previous research
  - ☐ Conceptual basis
  - ☐ Data collected & analyzed systematically
  - ☐ Clearly described & available for criticism

# What Is SBR?

- **Experimental & quasi-experimental design**
  - ☐ Randomization v. matching v. self selection with controls (isolation of treatment variables, problem of transferring medical model to education)
  - ☐ Professional ethics (malpractice, human subjects issues, negative & side effects)
  - ☐ "Natural" experiments or quasi-experiments
- **"Appropriate methods" alternative** (according to NRC): causal modeling
- **Status of qualitative research**

# What Is SBR?

- **Types of questions**
  - ☐ What is happening?
  - ☐ Is there a systematic effect?
  - ☐ How is it happening?

# What Is SBR?

- Types of questions
  - **What is happening?**
    - Descriptive studies
    - Conceptual viewpoint
    - Reproducible protocols for recording data
    - Purposes
      - Estimating population characteristics
      - Identifying simple relationships
      - Describing local settings

# What Is SBR?

- **Types of questions**
  - **Is there a systematic effect?**
    - Cause-and-effect studies
      - Correlation v. cause-and-effect
    - Controlling for antecedent & intervening variables
      - Randomization v. matching v. causal modeling
      - Ruling out competing answers

# What Is SBR?

- Types of questions
  - **Why or how is it happening?**
    - Process studies
      - Observation and interviews
      - Ethnographic approach
      - Testing hypotheses via alternative causal models

# How Much of It Do We Have?

- **Historical research on school library impact**
  - "What is happening?" type (simple correlations)
  - Local studies of students or classes
  - Largely experimental or quasi-experimental
  - Most common weaknesses
    - Lack of conceptual framework
    - Minimal reliance on previous research
    - Failure to document reproducible data collection strategies
  - Gaver study as "watershed"

# How Much of It Do We Have?

- **"Colorado"-style studies**
  - "Is there a systematic effect?" & "How is it happening?" types
  - Statewide studies of schools
  - Causal modeling (A leads to B leads to C, despite D) based on Information Power
  - Multivariate statistical analysis to control for competing causes
  - Norm-referenced v. standards-based test scores

# How Much of It Do We Have?

- **Krashen studies**
  - What is happening?" & "Is there a systematic effect?" types
  - Print, information-rich environments
  - School & public libraries
  - Correlations between availability & usage of information resources and test scores
  - Krashen's hypothesis about impact of poverty

# How Much of It Do We Have?

- **AASL/World Book Action Research Project**
  - □ "What is happening?" type
  - □ Encouragement of local documentation of impact
  - □ Local academic achievement data from local, state, or national tests
  - □ Power reader student survey
  - □ Power learner student evaluation/Power learner teacher, library media specialist and administrator evaluation

# How Much of It Do We Have?

- **Student Learning Through OH School Libraries**
  - "What is happening?" & "How is it happening?" types
  - "Student learning" (how) v. "academic achievement" (how much)
  - Student v. school as unit of analysis
  - Self-reported outcomes & critical incidents v. test scores

# How Much of It Do We Have?

- **Project Achievement**
  - "What is happening?" & "How is it happening?" types
  - National initiative to collect and present local evidence linking school library programs to student achievement
  - Units of analysis:  learner, teaching unit & organization
  - Outcomes:  reading, collaboration, information literacy & technology

# How Can We Do It Better?

- **Improving Research**
  - ☐ Elaborating conceptual frameworks (theories, standards)
  - ☐ Replicating research to improve generalizability (time, geography & politics)
  - ☐ Building on previous research
  - ☐ Combining quantitative & qualitative methods (research & political motivations)
  - ☐ Encouraging meta-analysis of research

# How Can We Do It Better?

- **Disseminating research findings (getting past the choir)**
  - ☐ White House conference
  - ☐ AASL Administrator Day
  - ☐ What Works Clearinghouse
  - ☐ Books, articles & presentations aimed at educator community

# How Can We Do It Better?

- **Applying findings (evidence-based practice)**
  - Politicization of education policy & research (tail wags dog)
  - Gap between research & practice
  - Bureaucratic pressures on practitioners v. freedom from "publish or perish" mentality (can't see forest for trees)