

Accommodating Multiple Disciplines, Vocabularies, and Levels of Search Experience



Brandy E. King, MLIS

Center on Media and Child Health (CMCH)

Children's Hospital Boston,
Harvard Medical School, Harvard School of Public Health



Background

Today, the average
American child between
the ages of 8 and 18 years spends

6 hours and 21 minutes

of every day using media



Background

Research connects

Media Exposure

- Television
- Movies
- Video Games
- Internet
- Magazines
- Music
- Music Videos

Health Outcomes

Physical Health

- Obesity
- Body Image

Mental Health

- Learning Opportunities
- Depression

Social Health

- Interpersonal Connections
- Aggression



Background

Mission of the Center on Media and Child Health:

To conduct, coordinate and compile scientific research to improve the understanding of how media affect children's health in positive and negative ways...



The Task

Create a database that would:

- bring together all existing research on the effects of media on child health
- be searchable by researchers from any discipline
- be searchable by novice users from the general public



The Task

Gathered over **8,000** citations:

- Keyword/Subject Heading searches
- Author searches
- Bibliographies of related papers



Boolean Search Engine

Search Options:

Free text

Author

Publication Date

Age Group

Study Design

Reference Type

Funding Source

Peer-Reviewed Research

By CMCH Staff

Words [AND] Must Include ▾

Author Name [AND] Must Include ▾

Publish Date

Anytime

before ▾ 2007 ▾

between 2007 ▾ and 2007 ▾

Age Group *Hold down CONTROL to choose more than one age group*

- Adolescence (13–17 yrs)
- Adulthood (18 yrs & older)
- Aged (65 yrs & older)
- Childhood (birth–12 yrs)
- Middle Age (40–64 yrs)
- Neonatal (birth–1 mo)
- Preschool Age (2–5 yrs)
- School Age (6–12 yrs)
- Very Old (85 yrs & older)
- Young Adulthood (18–29 yrs)
- Infancy (2–23 Months)
- Thirties (30-39 yrs)

Study Design *Hold down CONTROL to choose more than one study design*

- Content Analysis
- Correlational Study
- Descriptive/Historical
- Editorial/Comment/Letter
- Experimental Study
- Longitudinal Study
- Review
- Theory
- Qualitative Study

Reference Type *Hold down CONTROL to choose more than one reference type*

- Abstract
- Book
- Book Chapter
- Conference Proceedings
- Edited Book
- Electronic Source
- Film/Broadcast
- Journal Article
- Magazine Article
- Newspaper Article
- Pamphlet
- Report
- Testimony
- Thesis/Dissertation

Funding Source

Advanced Keyword

[» Add Keyword Group](#)

Return Results

All Results

Only Peer-reviewed Research

Publications by CMCH Authors

Search



Preparing a Citation

Step 1: Abstract Writer and LIS Intern **read** an article

Journal of Educational Psychology
2004, Vol. 96, No. 2, 297–308

Copyright 2004 by the American Psychological Association
0022-0663/04/\$12.00 DOI: 10.1037/0022-0663.96.2.297

Effects of Viewing the Television Program *Between the Lions* on the Emergent Literacy Skills of Young Children

Deborah L. Linebarger
University of Pennsylvania

Anjelika Z. Kosanic, Charles R. Greenwood,
and Nii Sai Doku
University of Kansas



Preparing a Citation

Step 2: Abstract Writer **writes** plain language summary and structured abstract

Over 150 kindergarten and first-grade students took part in a study about the educational television series "Between the Lions." Researchers wanted to see if watching the show would help them learn to read.

Some of the students were assigned to watch the show for a few weeks and others did not watch the show. The researchers found that everyone who watched the program showed improvements in being able to name letters and read fluently. © Center on Media and Child Health

Objective: To determine the viewing effects of Between the Lions (BTL), an educational TV series featuring literacy instruction, on the emergent literacy skills of kindergarten and 1st grade children.

Design: 2 (viewing vs. control) × 2 (kindergarten vs. 1st-grade) × 3 (at risk, moderately at risk, not at risk readers, assessed by initial reading ability) repeated-measures design, with random assignment to viewing/control group by classroom. Subjects completed pre-test of literacy measures. Viewing group watched 17 30-min BTL episodes, one per day. All subjects' individual reading skills retested after 8 episodes, and all literacy measures retested after 17.

Subjects and Setting: 79 kindergarteners (mean age = 6.02 years, 41 boys), 85 1st-graders (mean age = 7.10, 41 boys), recruited from 3 Kansas City area elementary schools, received parental consent to participate. 81% European American, 7% Hispanic, 6% African American; 8% with identified disability. 36% with family income <\$30,000, 26% >\$45,000.

Intervention(s): N/A

Outcome Measure(s): Specific program content assessment: speech to print matching, word recognition, concepts of print, word meaning, and word building. Individual reading skills. Normative early reading abilities.



Preparing a Citation

Step 3: LIS Intern **adds** metadata

Age Differences
At Risk Populations
Attention
Child Development
Children's Television
Cognitive Development
Comprehension
Educational Television
Language Acquisition and Development
Learning
Media Diet
Reading
Reading Ability
Television

Source of Funding: Funding Source Not Stated in Paper
Study Design: Experimental Study
Publication Type: Journal Article
Age Group: Childhood (birth-12 yrs), Preschool Age (2-5 yrs), School Age (6-12 yrs)



The Search Process

Step 1: Searcher **translates** information need into Boolean or free-text search

Information Need: Will watching TV help my daughter learn to read?



Boolean search:

Television AND
(Learning OR Language
Acquisition and
Development OR
Reading)

Free-text search 1:

TV read

Free-text search 2:

Television read



The Search Process

Step 2: Searcher presented with results listed alphabetically by author. Searcher **weeds out** which results answer the question.

Boolean Search:

Television AND (Learning
OR Language Acquisition
and Development OR
Reading)



208 results

Free-text search 1:

TV read



135 results

Free-text search 2:

Television read



147 results



The Task

Create a database that would:

- ✓ bring together all existing research on the effects of media on child health
- ~~be searchable by researchers~~ from any discipline
- be searchable by novice users from the general public



Challenges

Media effects research is **multidisciplinary**:

- Medicine
- Psychology
- Public Health
- Education
- Gender Studies
- Communication
- Sociology
- Anthropology
- Business
- Criminal Justice



Challenges

Multiple disciplines = Multiple vocabularies

- Observational Learning
- Imitation
- Modeling
- Copying
 - Electronic Games
 - Video Games
 - Computer Games
- Gender Roles
- Sex Roles



Challenges

Multiple **audiences** have an interest in research results:

- Researchers
- Clinicians
- Parents
- Teachers
- Policymakers
- Children and Adolescents



Challenges

Needed a search mechanism to **translate**

- Across academic disciplines
- Across vocabularies
- Across levels of search experience



Semantic Search

What if a search engine
understood
your question?



Semantic Search

What are some health benefits of Internet use?

Does seeing sexual behavior in music videos make teens more likely to have sex?

Will a person who plays violent video games become violent?



Semantic Search

What's the difference?

Boolean Search

Searches for
words

Relies on
strength of the
searcher

Semantic Search

Searches for
ideas

Relies on
strength of the
ontology



Semantic Search - Ontologies

Ontology:

Defined concepts and the
describable relationships between them

Words

Definitions

Relationships between those words



Semantic Search - Ontologies

Most common relationship

is_a = is a type of

Human **is_a** Mammal

Apple **is_a** Fruit

Hundreds of possible relationships:

brought_about_by

diagnosed_by

has_ingredient

result_of

occurs_with

associated_with



Semantic Search - Ontologies

Instant Messaging

Semantic Relationship	Concept
Is_A	Communications
Other_Name	IM
Occurs_In	Internet
Occurs_In	Computers
Performed_By	Peer Group
Has_Occurence	Interpersonal Communication
Has_Occurence	Bullying



Semantic Search

What's the difference?

Boolean Search

Searches for
words

Relies on
strength of the
searcher

Semantic Search

Searches for
ideas

Relies on
strength of the
ontology



Semantic Search

What if a search engine
understood concepts?

What if it knew what you were asking,
regardless of how you
phrased the question?



Preparing a Citation

Step 1: Abstract Writer **reads** an article and **uploads** it to a machine that semantically **parses** the article

Journal of Educational Psychology
2004, Vol. 96, No. 2, 297–308

Copyright 2004 by the American Psychological Association
0022-0663/04/\$12.00 DOI: 10.1037/0022-0663.96.2.297

Effects of Viewing the Television Program *Between the Lions* on the Emergent Literacy Skills of Young Children

Deborah L. Linebarger
University of Pennsylvania

Anjelika Z. Kosanic, Charles R. Greenwood,
and Nii Sai Doku
University of Kansas



Preparing a Citation

Step 2: Abstract Writer **writes** plain language summary and structured abstract

Over 150 kindergarten and first-grade students took part in a study about the educational television series "Between the Lions." Researchers wanted to see if watching the show would help them learn to read.

Some of the students were assigned to watch the show for a few weeks and others did not watch the show. The researchers found that everyone who watched the program showed improvements in being able to name letters and read fluently. © Center on Media and Child Health

Objective: To determine the viewing effects of Between the Lions (BTL), an educational TV series featuring literacy instruction, on the emergent literacy skills of kindergarten and 1st grade children.

Design: 2 (viewing vs. control) × 2 (kindergarten vs. 1st-grade) × 3 (at risk, moderately at risk, not at risk readers, assessed by initial reading ability) repeated-measures design, with random assignment to viewing/control group by classroom. Subjects completed pre-test of literacy measures. Viewing group watched 17 30-min BTL episodes, one per day. All subjects' individual reading skills retested after 8 episodes, and all literacy measures retested after 17.

Subjects and Setting: 79 kindergarteners (mean age = 6.02 years, 41 boys), 85 1st-graders (mean age = 7.10, 41 boys), recruited from 3 Kansas City area elementary schools, received parental consent to participate. 81% European American, 7% Hispanic, 6% African American; 8% with identified disability. 36% with family income <\$30,000, 26% >\$45,000.

Intervention(s): N/A

Outcome Measure(s): Specific program content assessment: speech to print matching, word recognition, concepts of print, word meaning, and word building. Individual reading skills. Normative early reading abilities.



The Search Process

Step 1: Searcher **asks** directly for their information need

Your question:

Must include:

Must exclude:

Max result size:



The Search Process

Step 2: Searcher **presented** with 10 results ranked by relevancy

Question: Will watching TV help my daughter learn to read?



Linebarger, D. et al. (2004). *Effects of viewing the television program "Between the Lions" on the emergent literacy skills of young children.*

Over 150 kindergarten and first-grade students took part in a study about the educational television series "Between the Lions." Researchers wanted to see if watching the show would help them learn to read.

Some of the students were assigned to watch the show for a few weeks and others did not watch the show. The researchers found that everyone who watched the program showed improvements in being able to name letters and read fluently. © Center on Media and Child Health



The Search Process

Question: Will watching TV help my daughter learn to read?

=

Question: Does television viewing increase early literacy ability?

=

Question: Are reading skills affected by watching television?



Semantic Search

What are some health benefits of Internet use?

Does seeing sexual behavior in music videos make teens more likely to have sex?

Will a person who plays violent video games become violent?



The Task

Create a database that would:

- ✓ bring together all existing research on the effects of media on child health
- ✓ be searchable by researchers from any discipline
- ✓ be searchable by novice users from the general public



Search Options

Which works better?
At what cost?

Boolean Search

Searches for
words

Relies on
strength of the
searcher

Semantic Search

Searches for
ideas

Relies on
strength of the
ontology





Brandy E. King, MLIS
Center on Media and Child Health (CMCH)



Children's Hospital Boston,
Harvard Medical School, Harvard School of Public Health

brandy.king@childrens.harvard.edu

website: www.cmch.tv

ask a question: www.cmch.tv/mentors/SemanticSearch.asp