



Development of User-Centered Interfaces to Search the Knowledge Resources of the Virginia Henderson International Nursing Library

Josette Jones, RN, Ph.D, BC, Indiana University, Indianapolis, IN
 Marcelline Harris, RN, Ph.D, Mayo Clinic, Rochester, MN
 Cheryl Bagley Thompson, RN, Ph.D, University of Nebraska Medical Center, Omaha, NE

Background

Legacy of the Virginia Henderson International Nursing Library
 ✓ 1979 original resolution for "national clearinghouse" for information related to nursing research and nurse researchers
 ✓ 1989 Computer purchase and beginning of electronic library
 o Database for electronic storage and retrieval
 o Knowledge modeling

2001 re-visioning the library for the future
 ✓ Gateway to web-based nursing resources
 ✓ Repository for unpublished/"fugitive" nursing research
 ✓ Informatics Learning lab
 ✓ Knowledge engineering using library resources

Problem Statement

The data structure does not match the desired vision and functionality of nurses nor their search strategies

Aim

The primary aim of this collaborative research project was to develop "tell and ask" functional interface where the nurse communicates with the knowledge base by making logical assertions based on his/her domain knowledge.

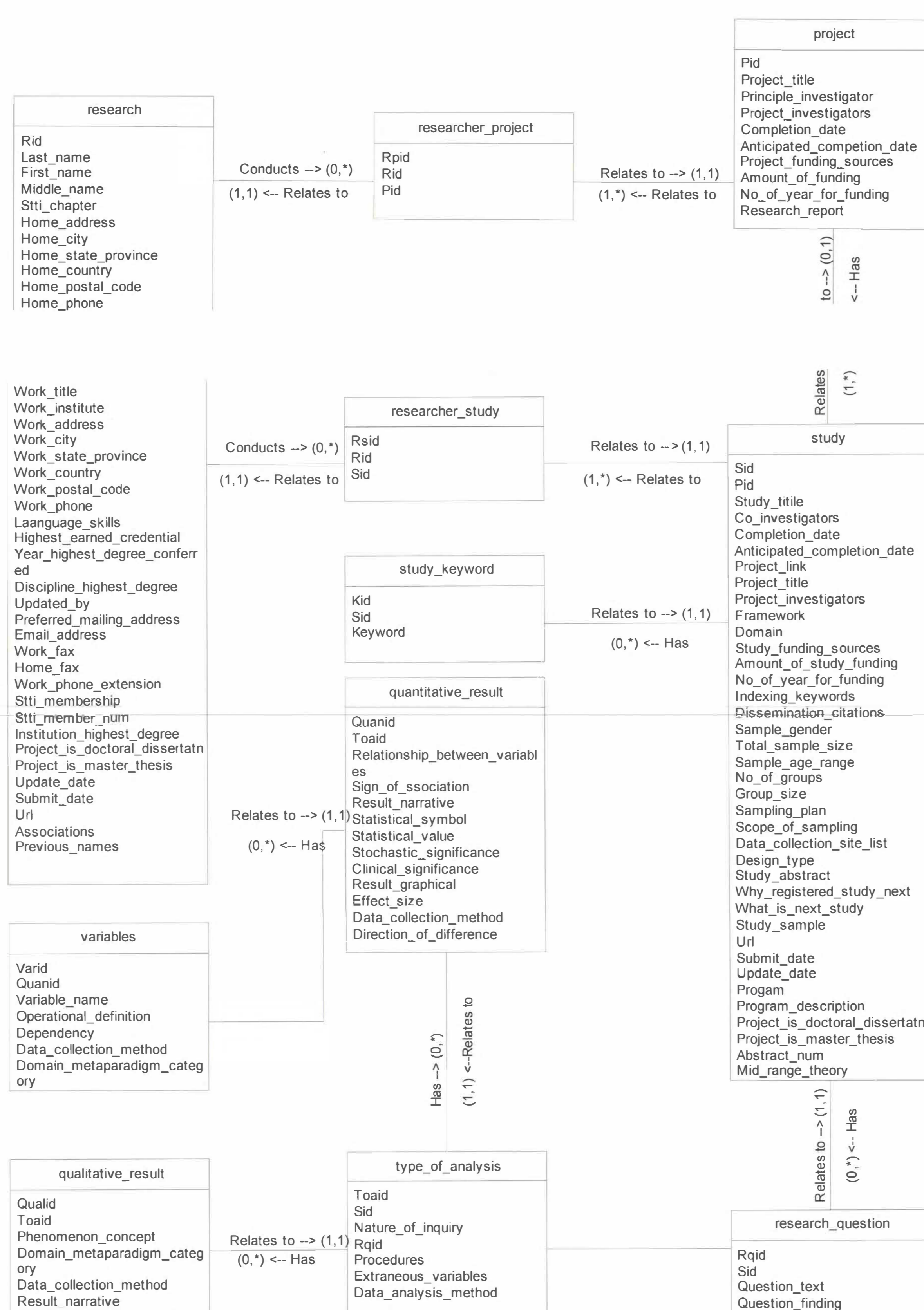
Method

- Analysis of current data structure
 - ◆ Data flow diagramming
 - ◆ Functional decomposition diagramming
 - ◆ Entity relationship diagramming
 - ◆ Data dictionary
- Survey of one user group to determine usability and utility of conference abstracts
- Analysis of indexing terminology
- Analysis of web logs to determine use of library site (7 months)

Results

Data Structure

- ❑ Data model is not normalized
- ❑ Publications and conference abstract combined into one field
- ❑ Multiple values in several fields
 - ❑ Multiple citations in dissemination field
 - ❑ Multiple keywords in keyword field
- ❑ Redundant fields
 - ❑ Keywords
 - ❑ Indexing Keywords



Use of Conference Proceedings

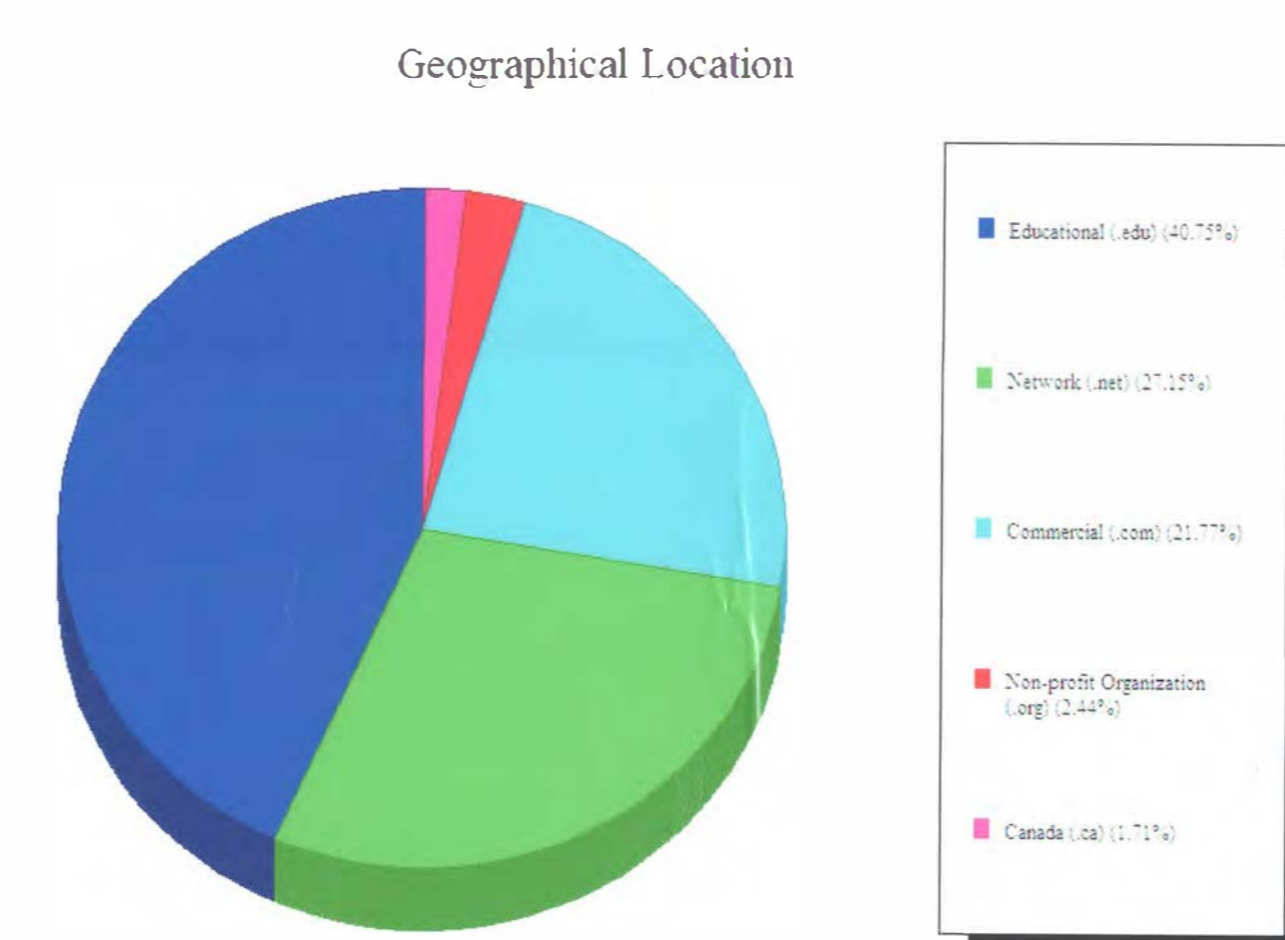
- ❑ Use of conference abstracts is relatively low (94 % of respondents)
- ❑ Current interface did not facilitate search for conference abstracts (73.7% of respondents)
- ❑ Conference abstract must be linked to publication (80.5% of respondents)

Indexing Terminology

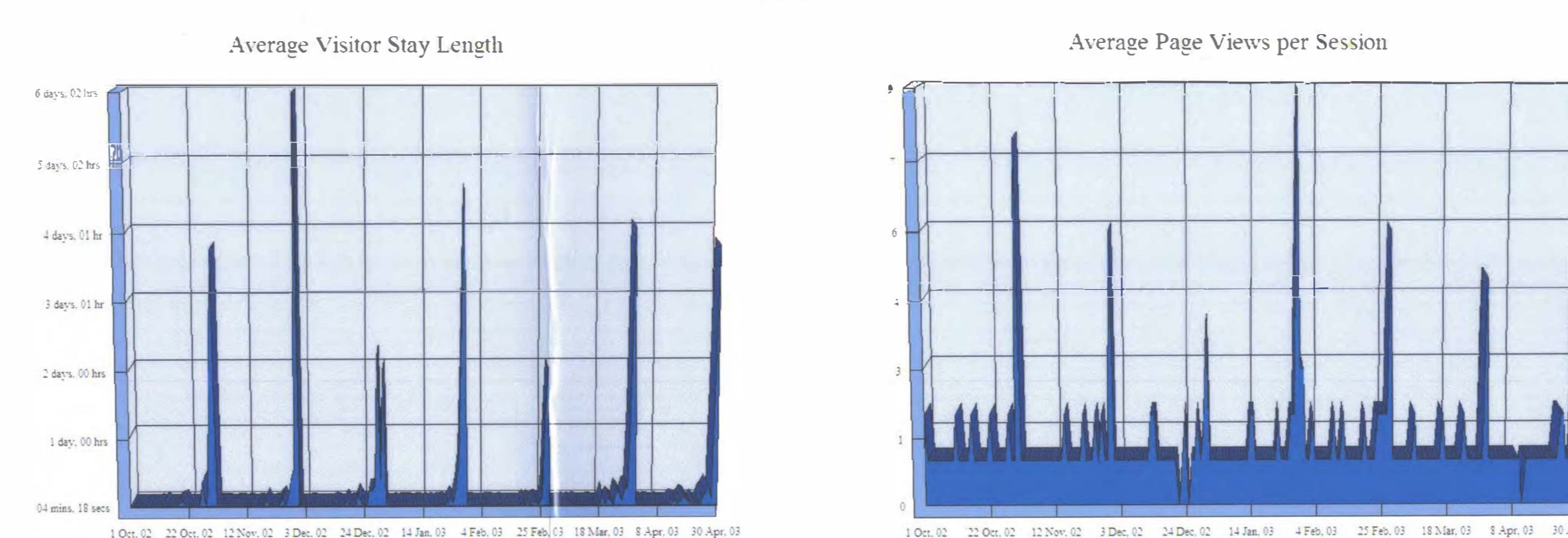
- ❑ Multiple indexing
- ❑ No mapping to UMLS

Use of library site

- ❑ Visitor information



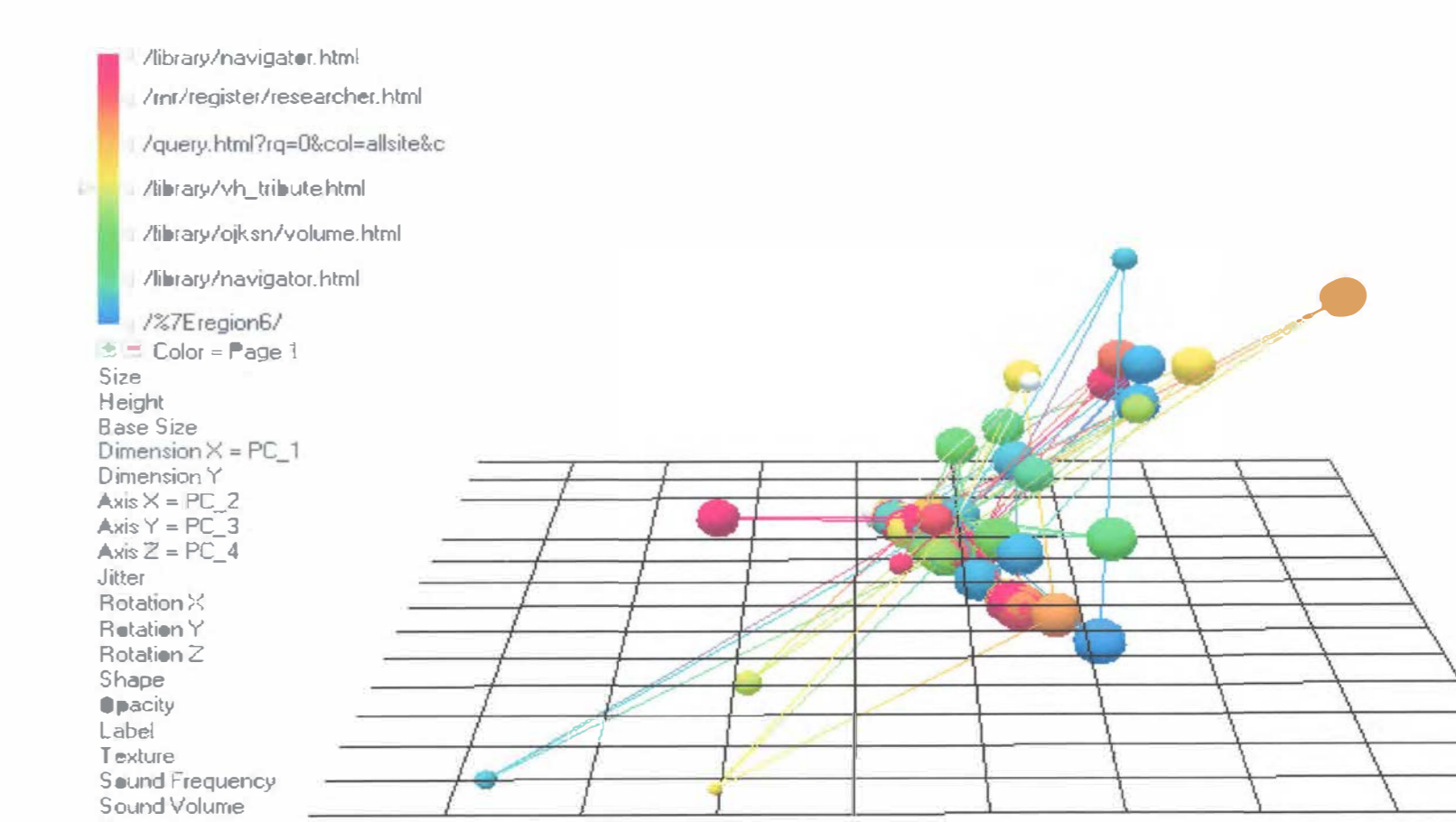
- ❑ Site Stickiness



- ❑ Most Frequent Search Terms/Phrases

Search Phrase	Frequency
virginia henderson	1020
+url:http://www.nursingsociety.org/education/case_studies/cases +virginia henderson +doctype:html	257
nursing shortage	246
nursing theory	237
scholarships	224
virginia henderson	148
henderson	102
osmosis	95
leadership	93
depression	89
diabetes	88
pain	88
nursing research	87
awards	77
pain management	76
diabetes	76

- ❑ Visualization of Use Behavior (01/01/03)



Implications

- ▶ Redesign of data model: completed
- ▶ Need for information model reflecting use behavior
- ▶ Exploration of requirements of controlled terminology

- ▶ More in depth understanding of users and their search behavior for functional interface design
 - Long term characteristics (i.e. role, education)
 - Short term characteristics (i.e. context of task)

Future Directions

- ▶ Align library interface with the redesigned organization's interface
- ▶ Apply proven digital library design to maximize usability and utility
- ▶ Align data base, data structures, and user behavior profiles
- ▶ Enable dynamic adjustment to user behavior
- ▶ Formally evaluate proposed changes.

